THE ILLUMINATING ENGINEER

LIGHT
LAMPS
FITTINGS
AND
ILLUMINATION

THE JOURNAL OF
GOOD LIGHTING

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OFFICIAL ORGAN of
The Illuminating Engineering Society
(Founded in London, 1909; Incorporated 1930)
and of
THE ASSOCIATION OF PUBLIC LIGHTING ENGINEERS
(Founded 1923; Incorporated 1928)

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Welcome to the International Illumination Congress!

We take this opportunity of associating ourselves with the cordial welcome extended by all sections of the lighting industry to members of the International Illumination Congress, with which this issue mainly deals. Our account will be continued in subsequent numbers. We trust that visitors from other lands will find their trip both agreeable and informative and will carry away with them pleasant recollections of their stay in this country.

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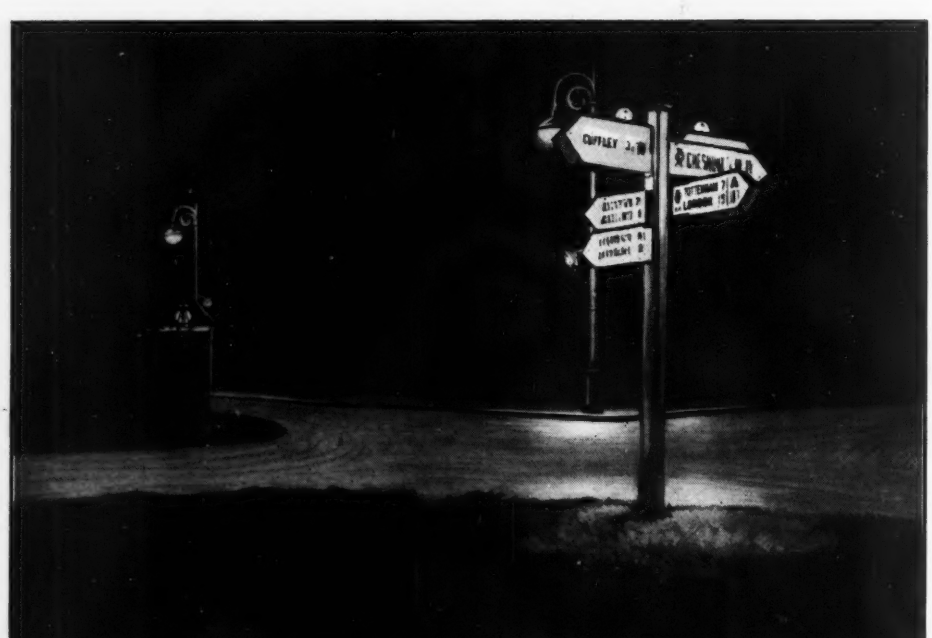

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Edited by
J. STEWART DOW

EDITORIAL AND PUBLISHING OFFICES:
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Tel. No.: Victoria 5215

The International Illumination Congress

AS we write these words the time for the opening of the International Illumination Congress is drawing near. Interest in the event has been mounting progressively during the past month. We fear it must be added that—as is almost inevitable on such occasions—the effort imposed on those responsible for the preparations has been mounting too! There is much that must necessarily be deferred until the last minute. It has also been a noteworthy feature of this Congress that applications for registration have not come to a stop by the nominal closing date, but have, on the contrary, been received almost without intermission up to the present moment. The number of registrations is now well over the 400 mark originally contemplated, and there will be at each centre many local visitors in addition—notably at Sheffield, where the Conference of the Association of Public Lighting Engineers is linked with the Congress.

The Congress should thus furnish opportunities of bringing illumination before the notice of a wide circle of people. The series of papers—over 150 in number—must surely contain something of interest for everyone. Everything possible has been done to render the tour of British cities agreeable and interesting, and the opening programme in London provides for several days that should be full of interest—(full participation in this programme will, in fact, make some demands on stamina!).

In the daily press attention has been, not unnaturally, focussed mainly on the special floodlighting in London. We are glad to hear that the period of display is to be extended from one week to four, so that Londoners will have ample opportunities of seeing these demonstrations of what floodlighting can do. We hope that the other displays that are being simultaneously prepared in Edinburgh, Glasgow and other cities will also be prolonged, and we are not without hope that some at least of these installations will become of a permanent character. We publish elsewhere a list of the 18 projected installations in London (19 if the special gas lighting in Whitehall is included), and we would like to associate ourselves with all that has been said by the London Committee in praise of the efforts that the firms responsible are making. Few outsiders, it may confidently be said, appreciate the skill and care necessary in preparing installations of this kind, which involve very special and costly arrangements for the supply of gas and electricity, whilst, in many cases, only a limited time is available for preparation. A special word of commendation is surely due to the Gas Light and Coke Company for their very enterprising experiments in St. James's Park, illustrating what gas can do in the field of spectacular lighting.

The effort involved in such demonstrations is well worth while. They mark a new era in floodlighting, which by the public mind is apt to be regarded as merely a commercial or publicity project. Some of the effects shown will, we hope, lead local authorities to think seriously of the possibilities of artificial light in rendering their cities beautiful by night.

The influence of such displays, even if intended mainly as a popular appeal, should not be minimized. They may open the way for other things. But behind them there is the more serious work of the Congress, terminating in the session of the International Commission on Illumination at Cambridge, where decisions of international importance may be taken. The record of the proceedings, to be subsequently issued in volume form, should be impressive, and the papers and discussion will doubtless prove of genuine educational value. But this we regard as only a small part of the aim of the Congress. Equally important—perhaps even more so at a time such as the present—is the opportunity it provides for renewing old friendships and forming new ones. This gathering together of experts from many lands, all interested in a common topic, is surely one of the most potent ways of promoting international fellowship.

Finally, we believe that in years to come it should be a source of pride to all those concerned with the organization of this Congress—the first of its kind ever to take place in Great Britain—that it is being triumphantly carried through in a year of unprecedented economic and financial depression, when every effort has been magnified by unforeseen obstacles. It is surely no small thing to have done this, and it is only the generous unanimity of all sections of the lighting industry that has made the feat possible. Before the Congress has terminated there will no doubt be opportunities of giving credit where credit is due. But in one respect we would like to depart from the usual procedure, and to refer now, before the Congress opens, to the wonderful services of the Honorary General Secretary, Col. C. H. Silvester Evans. We would like all members of the Congress to know, even before they assemble, how much they owe to his generous and unresting efforts.

Industrial Lighting

THE Report of H.M. Chief Inspector of Factories almost invariably contains interesting notes on industrial lighting. The survey of this subject in the Report for the year 1930, now available, illustrates the wide differences still encountered in the standard of lighting in factories. The introductory remark that the benefits of good lighting are becoming more and more generally realized is encouraging. The Home Office Factory Department, which comes in intimate contact with so many factories during the year, is in a good position to judge, and during the past winter there have been several special investigations in progress that have aided the collection of information. Mr. F. E. Shopland, who has continued the surveys initiated previously by himself and Miss B. M. Combes, remarks that lighting conditions are generally unsatisfactory in at least 95 per cent. of old factories devoted to fine engineering work, glare being distressingly evident. This, though regrettable, is perhaps not surprising. But one is concerned to hear that conditions are far from good in as many as 50 per cent. of new factories erected during the past two years.

Mr. Shopland's experiences confirm the suspicion that factory managers have readily reacted to the suggestion that they need more light, but are not equally impressed with the importance of obtaining this higher illumination without glare. Two instances of benefits derived from better lighting quoted by Mr. Shopland are instructive. In one case an increase from 2 to 7 foot-candles in a foundry was accompanied by an increase of $7\frac{1}{2}$ per cent. in the bonus earned by the workmen. In another case the substitution of scientifically designed reflectors in place of imperfect ones led to increases in output of as much as 60 per cent., as well as reducing eye-strain and headaches. This second example, which is quoted as showing "the advantages of proper shading," surely indicated that mere increase in illumination is not everything, and that more skilful use of the light available will in itself often bring about higher efficiency of work.

Some very bad examples are mentioned: a mill engine room with no artificial lighting and miserable access of daylight; and an earthenware works in which artificial light had to be used continuously, but which was provided with paraffin duck lamps only. On the other hand, some excellent installations have been visited. Allusion is made to experiments now proceeding on such subjects as the lighting of jacquard looms, docks, and silversmiths' and cutlery works. Investigations of conditions of vision in certain very fine processes (e.g., linking in hosiery and the mounting of electrical filaments by hand) such that the eye must be kept very near to the work however high the illumination, are recalled. Such work, it has been shown, demands the use of special spectacles.

We should like to draw attention to the excellent survey and courteous acknowledgment of agencies responsible for investigations of lighting problems and the publication of results. Amongst such agencies are mentioned the Illumination Research Committee of the D.S.I.R. and the Committee on the Physiology of Vision of the Medical Research Council; the Illuminating Engineering Society; the British Engineering Standards Association and the National Illumination Committee of Great Britain. Reference is also made to the publication of information in *The Illuminating Engineer* and to the useful demonstrations staged in the Industrial Museum and at the E.L.M.A. Lighting Service Bureau.

Illuminating Engineering in Russia

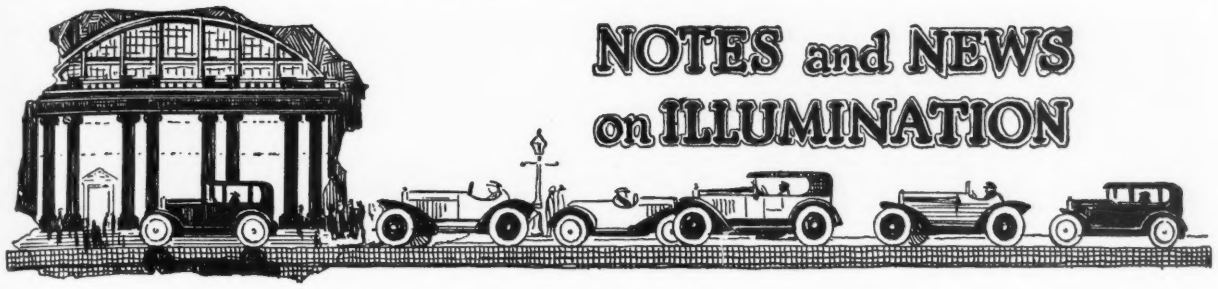
LITTLE is generally known regarding the development of illuminating engineering in Russia, or the Union of Soviet Republics (U.S.S.R.), as it is now more properly termed. The review of progress by Mr. Slookhay-Natalchenko, the hon. secretary of the Kharkov section of the illuminating engineering "union" in the U.S.S.R., is therefore timely.

Whilst this description still needs to be brought up to date by an account of what transpired at the third congress, held in April last, it will, we think, be new to most of our readers. It may come as a surprise to them to learn that three successive congresses devoted to illumination have recently been held in the U.S.S.R. The second of these, held in 1929, was attended by 250 visitors, by whom 80 papers reviewing different aspects of photometry and illumination were read. It will be agreed that this fact alone is sufficient to show that illumination is being taken seriously.

This impression is more than confirmed by a glance over the subject-matter of the papers, which cover a very wide range. What is particularly interesting to observe is the readiness with which codes of lighting are being framed and applied. At the 1929 congress no less than ten such codes, relating to the lighting of hospitals, schools, streets, railways, etc., were apparently adopted. In the meantime, the code for the lighting of factories, evolved at the first congress in 1927, had been forthwith made compulsory by the National Labour Committee, so that all new factories put up will presumably conform thereto. Whilst in most directions matters seem to be developing on lines closely resembling those in other countries, the code for factory lighting is singular in two respects, viz., the grading of illumination in terms of (*a*) coefficient of reflection of working material and (*b*) visual angle subtended at the eye (fineness of work). We are not quite sure whether we have correctly reproduced the author's version of the latter criterion, but, in any case, one would imagine that this ingenious attempt to take into consideration reflecting powers of materials and size of detail viewed would be somewhat difficult to apply in practice. The values of illumination prescribed (about 200 lux, or approximately 20 foot-candles, under the most severe conditions of work, and apparently 20 to 100 lux, or 2 to 10 foot-candles for most ordinary operations) are, however, not very far from those usually recommended.

Another interesting and practical feature of these congresses (which was doubtless rendered feasible by the special industrial conditions prevailing in the U.S.S.R.) was the manner in which the lighting of new factories and the starting of new projects, such as works for producing lamps and lighting fittings, were debated in papers presented. The figures given for the lighting demand of some recently planned factories are imposing, and suggest that illumination will be provided on a generous scale.

We shall look forward to receiving further accounts of lighting developments in the U.S.S.R. At the present moment, when an International Illumination Congress is about to be held in this country for the first time, such first-hand information on what is transpiring abroad is particularly welcome.



The Daylight Illumination Required in Offices

In our last issue we referred to the Technical Paper (No. 12) issued by the Department of Scientific and Industrial Research on the above subject, which suggests a minimum daylight factor of 0.2 per cent. in offices, in order to obtain reasonably adequate illumination. This value is arrived at by a somewhat empirical but practical method. A jury of seven persons was asked to visit a series of offices and to map out the limiting line in the offices where the illumination seemed to become unsatisfactory. By previously prepared photometric charts the corresponding values of the daylight factor could be readily determined. The average limiting value of the daylight factor was then determined from these collected data by the "frequency of occurrency" method, and appeared to be of the order of 0.16 to 0.19 per cent. This result leads to the conclusion that 0.2 per cent. may be taken as a convenient practical limit. It is interesting to observe that this figure has been independently adopted for some time in connection with ancient-light cases.

Shipping, Engineering and Machinery Exhibition

The above Exhibition will be held at the Olympia during September 10th to 26th, 1931.

The exhibition usually contains much of interest to the members of the Illuminating Engineering Society, although during the month of September their attention will naturally be mainly concentrated on the International Illumination Congress. We should like to mention, however, that members of the Illuminating Engineering Society have been specially invited to a visit on Monday, September 21st, and tickets will be despatched to them in due course. We may also add that anyone who happens not to receive a ticket can obtain one on application to the Organizers, Exhibition Offices, Grand Buildings, Trafalgar Square, London, W.C.2.

"Continuous Lines of Light"

We notice in *Signs* a comment on a modern tendency in exterior and spectacular lighting to which we have more than once drawn attention—the use of the continuous luminous line. This method is perhaps most highly developed in Germany, notably in Berlin, though in Munich and Hamburg there are also good examples. The line is considered to go well with modern German architecture—and it is remarked that in Germany architects work in closer co-operation with sign-makers and lighting contractors than they do in England. The lines are readily produced with neon tubes, but concealed lamps placed in troughs covered with frosted glass are also used—the troughs being quite frequently "set in" in the case of new buildings.

A Committee on Road Accident Statistics

We understand that the Minister of Transport, in response to an appeal by the Pedestrians' Association, has appointed a Departmental Committee to consider Road Accident Statistics. The Association has made a number of suggestions as to the manner in which the existing method of compiling official statistics on road accidents might be amended. It is proposed that more attention should be given to the circumstances under which road-users suffer accidents (e.g., whether they were walking along a carriageway or footpath and whether this carriageway was furnished with a footpath or refuges). To our mind one of the most useful of their suggestions is that accidents should be divided according to whether they occurred in daylight or during lighting-up hours. We have often urged that some such division should be made, as it is otherwise almost impossible to trace the relation between lighting conditions and accidents. The Association of Public Lighting Engineers, like the Pedestrians' Association, has a direct interest in this inquiry. One would like this body represented on the Committee of Inquiry or at least invited to give evidence.

The I.E.S. Reports on School and Library Lighting

In our last issue we mentioned that the reports on the above subject, prepared by the Technical Committee of the Illuminating Engineering Society, had been reprinted in pamphlet form and were available for distribution. We understand that the demand for copies has been considerable; copies of the Report on Library Lighting were included in all issues of the *Library Association Record* circulated last month to members of the Library Association. Copies of this and the school-lighting report were sent to all the chief bodies likely to be interested, as well as to the technical press, which has, as usual, given generous publicity to their contents. The result has been that for some time there has been a steady stream of letters asking for copies of the reports. It will no doubt be gratifying to the members of the sub-committees, who spent laborious days (and nights) preparing these reports, to hear that they are proving useful and in good demand.

Public Lighting in Liverpool

Our attention has been drawn to the fact that in the summary of the Report of the Public Lighting Engineer for Liverpool, which appeared in our last issue (page 186), it was inadvertently stated that the 10 miles of courts were lighted by electricity. We find that this is incorrect, and that the 10 miles of courts are, in fact, lighted by gas, which is also used for nearly the whole of the passages (approximately 215 miles).

All-Artificial Lighting in a Railway Station

An interesting precedent has been established by the illumination of Boston's remodelled South Station, described in *Lighting*. The new lighting is exclusively artificial. Until recently the concours, which is over 600 ft. long and with an average width of 55 ft., received natural light through a series of skylights. In practice, however, these skylights were not very serviceable owing to the rapid obscuring of glass by dust and smoke from locomotives, and the cost of regular cleaning for such a large area of glass was found to be prohibitive. Accordingly in the remodelled station natural lighting has been abandoned. Artificial light is provided from a series of box-fittings, equipped with diffusing glass and set flush in the ceiling. Four 200-watt lamps equipped with prismatic reflectors are mounted in each of these boxes, which are spaced on 20 ft. centres. The new arrangement is considered entirely satisfactory. The illumination is ample and the style of fittings adopted gives a free view from end to end and avoids the "forest" effect which would be inevitable if pendant fittings were adopted in the case of such a large area. Other large railway stations might well consider this case when redesigning their lighting arrangements. From the standpoint of avoiding glare the inset fittings described have much to recommend them. The job of keeping overhead glass clean has long been a formidable one, and is likely to remain so, even if electric traction should diminish or do away with engine smoke.

The 50,000-watt Lamp

In *Die Lichttechnik* we notice a description of the huge lamps, consuming no less than 50,000 watts, recently constructed. As is well known, lamps consuming 2,000, 3,000, and even 5,000 watts have proved quite practicable and useful, not only for lighting streets and large open spaces and for special floodlighting, but also in the talking film industry, where the silent operation of incandescent lamps is considered an advantage. For such special purposes as the lighting of landing-grounds at aerodromes lamps of 10,000 and 20,000 watts have been developed. Whilst individual lamps of such high candle-power naturally have a somewhat limited application, it is worth noting that the concentration into powerful units results in a materially higher efficiency to be obtained. Thus it is stated that a 3,000-watt lamp gives about 60 per cent. more light than fifty 60-watt lamps would do. The production of a 50,000-watt lamp may be described as an enterprising feat, though it would appear that as yet few applications for such very powerful units exist. This lamp is stated to give as much light as 1,600 lamps of 60 watts each, so that the efficiency of the 60-watt lamp may be said to be roughly doubled. As the 50-kilowatt lamp requires 230 amps. at 220 volts the introduction of leading-in wires presents evident difficulties. Metal parts in the vicinity of the filament become red hot and, owing to the heat developed, it is inexpedient to come within about 6 ft. of the lamp. The complete lamp weighs about 7.25 kgs. and is 90 cms. high. The filament consists of tungsten wire 2.5 mm. thick wound into a spiral of 10.5 mm. diameter, and the assembled filament is confined within a cylinder 110 mm. in diameter and 65 mm. high. About 610 gms. of tungsten are thus used (a quantity sufficient to furnish wire for 110,000 220-volt. 30-watt lamps!). The candle-power in a direction perpendicular to the axis of the lamp is about 125,000 H.K.

Projectors and Searchlights for Airway and Marine Services

A contribution reviewing present progress in the above field of lighting has recently appeared in *A.E.G. Progress* (Aug., 1931). Up to the termination of the war mirrors having diameters up to 6½ ft., and yielding beam candle-powers up to 4,000 million, were made and used, but, under the Treaty of Versailles, Germany is not now permitted to manufacture searchlights with mirrors exceeding about 2 ft. in diameter. A mirror of this size is, however, usually adequate for commercial airway and mercantile marine services. Various types of lighting units in use at airports are mentioned, such as location beacons, indicating lights and wind-indicators, red obstruction lights, boundary lights and landing floodlights. Amongst other interesting special units is a searchlight device for determining the height of clouds. Serviceable incandescent lamp units equipped with 500, 1,000 and 2,000-watt lamps for mirrors of 10 ins., 14 ins. and 20 ins. diameter have been developed and can furnish beam-candle-powers up to 1.7 million. In such cases only deep mirrors with a large angle of dispersion are used. It is stated that the beam-candle-power can be approximately doubled by giving a polished metal coating to the side of the bulb remote from the mirror of the projector.

Lighting at the Colonial Exhibition, Paris

We referred recently to the lighting of the Colonial Exhibition in Paris, where very special arrangements have been made. Some of the devices are novel, notably the "arch of light" obtained by a series of jets of water interlinking above the lake and illuminated by concealed projectors. Throughout the Exhibition, however, a system of concealed lighting has been followed. All the fittings are of original design and all depend on indirect methods, no source of light being visible. In the Grand Avenue recourse has been had to luminous pylons, hexagonal in section and fitted with concave sides illuminated by the aid of concealed incandescent lamps and neon and mercury-vapour tubes. The other pendant and standard lighting units assume unusual forms ("pagoda," "lotus," "series of cones," etc.), the guiding principle throughout being that the actual source is completely concealed and light is received only indirectly and by reflection from the white enamel. The method is thus an extension of that practised in the Zoological Gardens in Berlin and in the Piccadilly Underground Tube Station in London, both of which installations have been illustrated in these columns.

SPECIAL SECTION

The International Illumination Congress (1931)

September 1st—19th

The International Illumination Congress, 1931

(*To take place in Great Britain during September 1st—19th*, 1931).

IN our last issue we reproduced the programme of the Congress and a list of papers to be read. We are now supplementing these data by some notes on the unique series of lighting experiments in London, which have aroused so much interest. As the arrangements for many of these installations can only be completed immediately before the Congress opens, our account is necessarily incomplete, but we have included (p. 206) a list of the buildings illuminated, and we hope to complete the illustrated description in our next issue.

Display from H.M.S. "President."

These illuminations, however, are to be supplemented by other special items. Amongst these may be mentioned the programme to be carried out by the Royal Naval Volunteer Reserve on H.M.S. *President* in the course of the river trip on September 1st. During 9 p.m. to 10 p.m. night defence stations will be taken, the guns on the forebridge being floodlighted so as to be readily visible from the Embankment and Blackfriars Bridge. At 9.20 p.m., the ship, which up to that time will have been illuminated, will be darkened, and a drill display will be given showing four 12-pounder guns on the upper deck, controlled from the forebridge. All suspicious craft will be challenged by flood lamps, the recognized signal for the night being a *white* flare. Vessels giving any other reply will be fired on—naturally with blank cartridge—the target being meanwhile illuminated by searchlights or star shells. If the enemy surrenders a boat will be lowered to pick up the survivors. From 9.40 onwards the ship will be again illuminated.

Displays at Croydon Aerodrome.

At 11.15 p.m., on September 2nd, a display will be given by the Royal Air Force at Croydon. Various methods of landing at night, under lights carried by the aircraft themselves, will be witnessed. This will be followed by an exhibition (in which the Claude General Neon Lights Ltd., Messrs. Chance Bros. & Co. Ltd., and the General Electric Co. Ltd. will take part) of aerodrome and airway lights and landing at night under civil conditions of flight.

Official Luncheon.

On September 1st the Gas Light and Coke Co. and the London electric supply interests, both company and municipal, are joining in entertaining delegates to luncheon at the Savoy Hotel. This is yet another illustration of the happy community of effort in connection with the Congress by these two rival branches of the lighting industry. We learn with pleasure that the Right Hon. George Lansbury, M.P., has consented to attend the luncheon and welcome the visitors.

Official Banquet.

The official banquet at the Dorchester Hotel will take place at 8 p.m. on September 2nd. We understand that an excellent attendance is assured. A visit to this, one of London's latest and most modern hotels, which is lighted on original lines, should prove of great interest.

"A London Symphony."

Yet another surprise item is the special book on London, to be issued under the above title. This original guide book, which has been specially written and prepared for the Congress under the joint editorship of Mr. W. Tudor Davis and Mr. P. Good, is doubtless one of the most enterprising literary efforts ever offered to visitors by an international technical body. It contains a series of original articles by men of letters and experts on various aspects of London. Amongst the contributions we note: "The London Scene," by James Bone; "The King and His Palaces," by the Hon. Sir John Fortescue (late Librarian of Windsor Castle); "Parliament and the Law," by Sir Claude Schuster, G.C.B., C.V.O. (Permanent Secretary to the Lord Chancellor); and two contributions reviewing "Greater London," by Mr. A. H. Thomas (Deputy Keeper of the Records of the Corporation of the City of London), and Mr. Montagu Cox.

Other articles include: "The Port of London" (A. G. Linney), "London Lights" (Percy Good), "London's Men of Letters" (J. C. Squire), "London Theatres" (Ivor Brown), "Shopping in London" (Edith Shackleton), "London as an Air Centre (Col. F. C. Shelmerdine).

There are also notes on London's restaurants, art galleries, museums, theatres and cinemas, concert halls. The book is illustrated by pleasing sketches, and is got up in a novel and arresting style.

French and German translations will be available for those requiring them. Copies of this unique book, which is being presented to members of the Congress, will be obtainable (price 3s. 6d., in English; 4s. 6d., if translated into French or German) on application to the Illuminating Engineering Society, 32, Victoria Street, London, S.W.1.

Illuminated London

A Unique Series of Floodlighting Installations

IF there is one feature of the Congress which has done more than anything else to attract public attention it is undoubtedly the wonderful series of floodlighting installations that have been prepared. At the time of writing all these schemes are not completed, but a list is presented herewith, and some of them are already illustrated and described in the following pages. Others will be dealt with in our next and subsequent pages.

In presenting the accompanying list we gladly take the opportunity of giving publicity to the names of the firms responsible. Both gas and electric interests are represented and have responded nobly to the great demands made upon them. Besides the firms whose names appear in the accompanying table special mention should be made of the following:—

ELECTRIC SUPPLY: The London Electric Supply Association.

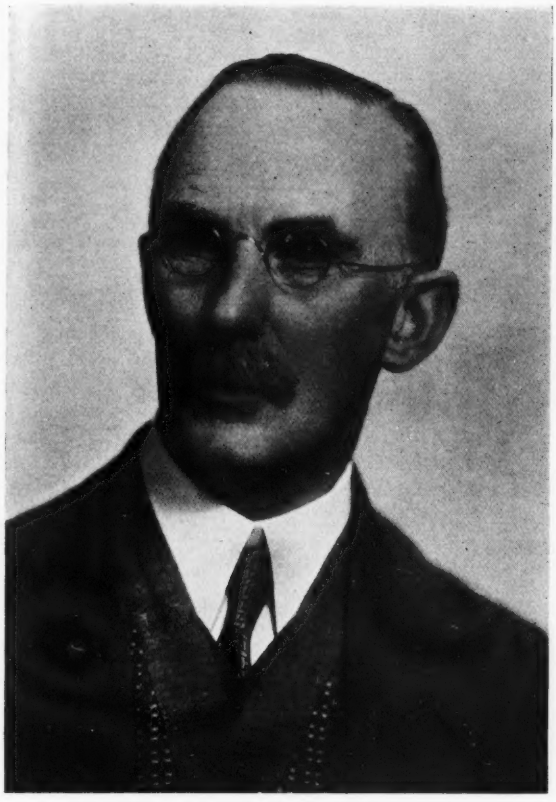
GAS SUPPLY: The Gas Light & Coke Co.

ELECTRIC WIRES AND CABLES: The Cable Makers' Association.

Acknowledgment should also be made, firstly, of the kindness of His Majesty the King in permitting the floodlighting of Buckingham Palace; secondly, of the aid of the First Commissioner of Works and various members of his staff, without whose co-operation it would have been impossible to carry out these arrangements; and thirdly, of the sympathetic help of various Government Departments and authorities—the Port of London, the Bridge House Estates Committee, the London County Council, and the Westminster City Council—who have been most considerate and helpful in granting facilities.

In addition to these main items, there are numerous subsidiary additional floodlighting installations being arranged in London, such as the Town Hall, Libraries and Churches in Hammersmith, Limehouse Generating Station, St. Marylebone Town Hall, etc., whilst special efforts are also being made to light up important and historic buildings in other cities to be visited. Another noteworthy piece of lighting, described elsewhere in this issue, is the additional gas lighting in Whitehall, which, during the period of the Congress, will be illuminated with unprecedented brightness.

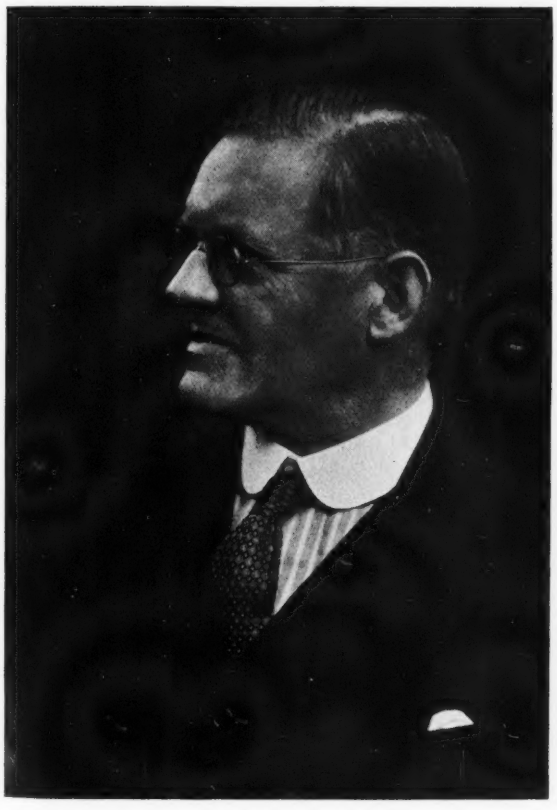
FLOODLIGHTING INSTALLATIONS.	FIRMS RESPONSIBLE.
1. BUCKINGHAM PALACE	The General Electric Co. Ltd. Messrs. Troughton & Young Ltd.
2. CLOCK TOWER (Houses of Parliament)	Messrs. Holophane Ltd. Messrs. Siemens Electric Lamp & Supplies Ltd. Messrs. T. Clarke & Co. Ltd.
3. COUNTY HALL	Messrs. Siemens Electric Lamp & Supplies Ltd. Messrs. Rashleigh Phipps & Co. Ltd.
4. FIRE FLOATS OF HUNGERFORD BRIDGE	Messrs. Siemens Electric Lamp & Supplies Ltd.
5. H.M.S. "SCOUT" IN POOL OF LONDON H.M.S. "PRESIDENT," VICTORIA EMBANKMENT	Admiralty. Messrs. J. Mowlem & Co. Ltd.
6. HORSE GUARDS' BUILDINGS	Messrs. John I. Hall.
7. INCORPORATED ACCOUNTANTS' HALL	Society of Incorporated Accountants and Auditors. Messrs. George Belshaw & Co. Ltd. Messrs. Restlight Ltd.
8. LANDSCAPE LIGHTING IN ST. JAMES'S PARK	The Gas Light & Coke Co.
9. NATIONAL GALLERY	The Strand Electric & Engineering Co. Ltd.
10. NELSON STATUE	The Strand Electric & Engineering Co. Ltd. The Stelmar Projection Lighting Co. Ltd.
11. ST. MARTIN'S CHURCH	The Strand Electric & Engineering Co. Ltd. The Stelmar Projection Lighting Co. Ltd.
12. ST. PAUL'S CATHEDRAL ST. BRIDE'S SPIRE	26th Division of the London Territorials.
13. SOMERSET HOUSE	Messrs. Edison Swan Electric Co. Ltd. Messrs. Cecil Cooper & Co. Ltd.
14. TOWER BRIDGE	Bermondsey Borough Council. Stepney Borough Council.
15. TOWER OF LONDON	The Benjamin Electric Ltd. Messrs. Anderson, Angell & Co.
16. VICTORIA MEMORIAL	The General Electric Co. Messrs. Troughton & Young Ltd.
17. WESTMINSTER ABBEY	Messrs. Holophane Ltd. Messrs. Siemens Electric Lamp & Supplies Ltd. Messrs. Bell Bros. Ltd.
18. WESTMINSTER CATHEDRAL (TOWER)	Messrs. Lewenz & Wilkinson Ltd. Messrs. Baxter & Caunter Ltd. Messrs. Norrington & Landon Ltd.



MR. CLIFFORD C. PATERSON (*President*).

Photo: Elliot & Fry.

LT.-COL. K. EDGCUMBE (*Chairman of the General Council*).



SIR FRANCIS GOODENOUGH (*Hon. Treasurer*).

Photo: Elliot & Fry.

COL. C. H. S. EVANS (*Honorary General Secretary*).

The International Illumination Congress (Gt. Britain, 1931)

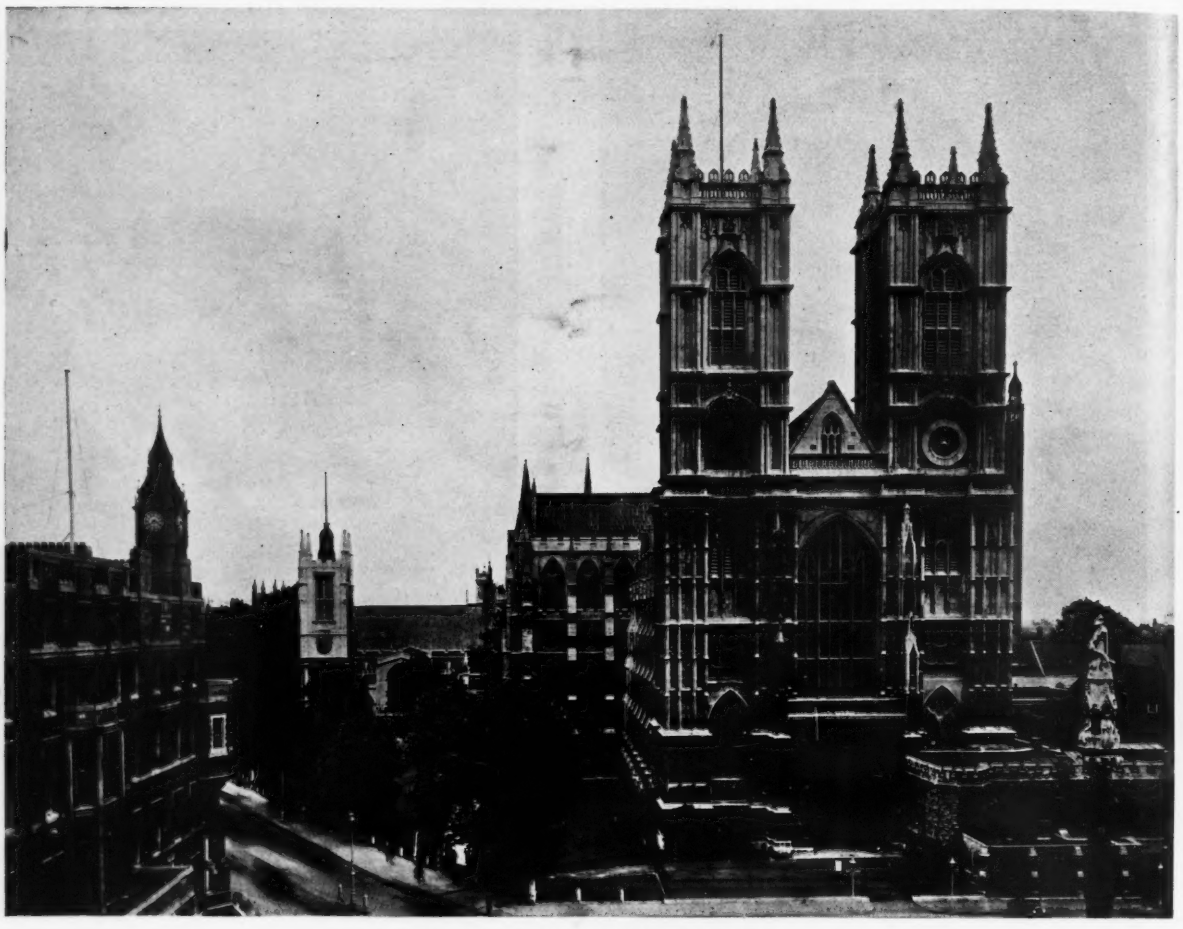


FIG. 1.—A View of Westminster Abbey by Daylight.

A Preliminary Account of Some of the Electrically Floodlighted Buildings in London

As explained on previous pages, it is only possible at this stage to describe a few of the installations summarized on p. 206. In some cases (notably Big Ben Tower and Westminster Abbey) rehearsals could be arranged at a comparatively early stage. Some notes on this installation have already appeared in *The Illuminating Engineer*.* In these initial experiments much useful information was obtained, which will enable an even finer effect to be obtained at the final display. But in most cases the experiments could only be commenced shortly before the display date; as we go to press trials are being initiated, but no data or pictures are yet available. We hope, therefore, to give much fuller descriptive data in our next issue.

WESTMINSTER ABBEY AND BIG BEN TOWER.

This installation was carried out jointly by Messrs. Holophane Ltd. and Siemens Electric Lamps and Supplies Ltd. In the trial installation twelve Holophane-Siemens 100-watt floodlighting projectors were installed on the flat roof of the Central Hall. The western front of the Abbey illuminated is approximately 225 feet high by 95 feet wide, and the throw for the floods from the Central Hall 300 feet. A maximum beam-candle-power of 250,000 from each unit, making a total of 3,000,000 for the 12 units, was attained. A similar number of 1,000-watt floodlighting units was used on the trial for the western front of Big Ben.

The battery of twelve floods was erected in the Court Yard, 150 ft. from the face of the tower. For the section directly above the clock face there is a belfry set-back, so that the ordinary projection of the floods would cut out the colonnade arches, and here a series of Siemens concentrating reflectors with 100-watt lamps were installed. Behind the face of the clock the white normally used 100-watt lamps were replaced by Siemens 150-watt amber-sprayed lamps. This gave a red colour to the clock face, which, when flooded from below, gave a pink colour relief.

The tower is approximately 320 ft. from the base to the top of the lantern, and 200 ft. to the centre of the clock face, the width being approximately 50 ft. The mean throw of the beams was 170 ft.

The intensity provided for these preliminary trials (approximately 2-4 foot-candles) was only about one-third of that intended to be ultimately used, when even more impressive results may be anticipated. Furthermore, during the Congress, three sides will be illuminated, north, east and west, so that the tower will be visible around practically the whole of London.

The following schedule of the equipment as now proposed may be of interest:—

ST. STEPHEN'S TOWER, BIG BEN.

The east, north and west faces are being floodlighted, the equipment being:—

East Face. 36 Siemens-Holophane narrow beam projectors, equipped with 1,000-watt Siemens lamps, some of the reflectors being fitted with prismatic ribbed glasses to give a rectangular beam.

West Face. 36 ditto.

* *Illum. Eng.*, May, 1931, p. 117; June, 1931, p. 144.

FIG. 2.—A Corresponding Night View showing the appearance when floodlighted, with Big Ben Tower in the distance.

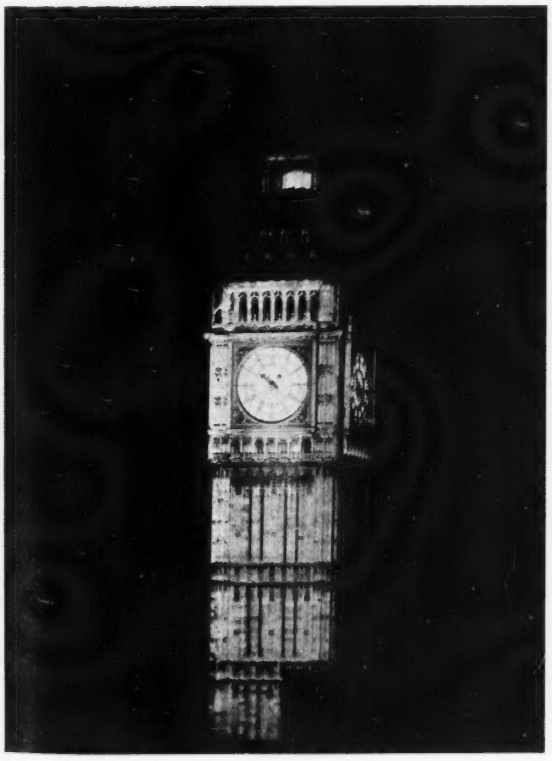


FIG. 3.—A View of Big Ben Tower Floodlighted.

FIG. 4.—Another View of Big Ben Tower, showing the effect of extra local lighting above the clock face.

North Face. 29 ditto.

The colonnade above the clock face is equipped with 27 Siemens silvered-glass reflectors and 100-watt Pearl lamps. Inside the clock are 36 150-watt Siemens gasfilled lamps sprayed amber.

WESTMINSTER ABBEY.

24 Siemens-Holophane narrow-beam projectors, equipped with 1,000-watt Siemens lamps.

We are indebted to Messrs. Holophane Ltd. for Figs. 1, 2 and 3, which illustrate the effect produced during the trial tests. Fig. 4, which has been furnished by Siemens Electric Lamps and Supplies Ltd., is a supplementary view of the tower, illustrating the use of additional local lighting to improve the appearance of the set-back area above the clock face.

Buckingham Palace and the Victoria Memorial

Although the arrangements are not yet completed, we are informed that the General Electric Co. Ltd., of London, has prepared an elaborate scheme of floodlighting for the main front of Buckingham Palace which faces the Mall. In addition to this, the Victoria Memorial immediately opposite the Palace will also be floodlighted as an integral part of the scheme.

The illumination of Buckingham Palace will be carried out by means of 183 standard G.E.C. 1,500-watt long-range floodlight projectors located alongside the railings within the forecourt, and so arranged as to floodlight across the front of the Palace from one direction, in order to throw into prominence the architectural features. The Palace will be floodlighted with white light, and it is estimated that a total beam-candle-power of no less than 62,000,000 will be used. In order to provide a certain amount of contrast between the illumination of the Memorial and the Palace itself when viewed from the Mall, it has, however, been decided to flood the former with contrasting amber illumination.

The units that are being employed for each section of this installation are standard G.E.C. projectors embodying single-piece mirrored-glass reflectors, their equipment throughout consisting of high-wattage Osram floodlighting lamps.

By the courtesy of the General Electric Co. Ltd., we present a picture of the Victoria Memorial, which stands out in a most striking manner when viewed from the other end of the Mall.

FIG. 5.—Floodlighting of the Victoria Memorial.

Floodlighting at the Tower of London

In this case the floodlighting is rather of a different nature from the other examples which delegates will see in that the purpose has been to provide illumination over the open ground area, rather than the illumination of building frontages. This type of floodlighting is employed extensively in this country for industrial yards, railway yards, quarries, and outdoor sports.

In view of the lighting being projected downwards from suitable poles or vantage points on buildings, it is possible to use open reflectors of higher efficiency and less elaborate construction than is necessary when the light is projected upwards on to a building front. A feature of this installation is the introduction, for the first time, of the Benjamin "Duoflux" floodlights, which, by their combination of specially designed vitreous enamelled reflectors with an interior non-tarnishing polished-metal reflector, produces a composite beam having a concentrated high candle-power core surrounded by a wide-angle diffused distribution. This enables large areas to be covered whilst emphasizing any particular section or feature within the beam range.

"Duoflux" is used where a long throw is necessary. But in other situations at the Tower of London elliptical and parabolic angle reflectors are employed, and for the purpose of "picking out" the half-timbered elevations on the Governor's house and Byward Tower, the Benjamin "Projectorlux" small enclosed floodlights are used.

The National Gallery and St. Martin's Church

The floodlighting of the above has been carried out by the Strand Electric and Engineering Co. Ltd., to the design of Mr. L. G. Applebee, the manager of their theatre and illumination department. The main building at either end is illuminated by their Pattern 48 flood lanterns containing 1,000-watt lamps and placed at 12-ft. centres, approximately 24 ft. from the building inside the main railings.

The centre portico has been specially treated so that the columns stand out in relief against the main background, the lighting units being their 17-in. "Sunray" stage floods adapted for outdoor use. These contain 1,000-watt lamps, and are placed at 9-ft. centres between each pair of columns.

The church spire is illuminated by Strand Electric "Stelmar" projectors placed on the roof of the National Gallery and by flood lamps situated at the base of the steeple on the Trafalgar Square side.

Nelson's Statue

The figure of Lord Nelson is illuminated by three "Stelmar" projectors placed on the top of Grand Hotel Buildings, Drummond's Bank, and the Admiralty Arch respectively. Each lantern contains a 1,000-watt lamp, and by means of the optical system the intensity of each beam will exceed one million candle-power.

The London County Hall

This building, by reason of its position on the far edge of the Embankment, offers a quite exceptionally good subject for floodlighting, and is being handled by Messrs. Siemens Electric Lamps and Supplies Ltd. Although plans for the lighting of this building are in process of completion, and photographs have not yet been taken, we understand that the equipment comprises 34 Siemens extensive-type floodlight lamps equipped with 1,000-watt lamps, 12 lanterns of similar type equipped with 300-watt lamps, and 16 narrow-beam projectors equipped with 1,000-watt lamps and provided with ribbed prismatic front glasses to give a rectangular beam. Messrs. Siemens Electric Lamps and Supplies Ltd. are also responsible for the special lighting of the L.C.C. fire floats at Hungerford Bridge, for which eight Siemens narrow-beam projectors equipped with 1,000-watt lamps will be used.

Thames House, Millbank

There are also numerous additional floodlighting displays, apart from those on the official list. One of the most pleasing of these is Thames House, Millbank. This has been floodlighted by the General Electric Co. Ltd., to whom we are indebted for the view of this building presented in Fig. 6.

An interesting feature of this installation is the lighting of the roof, which is effected by some 160 trough fittings in which 60-watt Osram "Striplite" lamps are installed. These extend for the whole length of the roof, and their light is directed upwards on the roof-surface with striking effect. (This is believed to be the first instance of roof-lighting of this character in England.) In designing the general floodlighting effect the aim has been to throw the various architectural features into relief and avoid "flatness." To effect this it was necessary to install some twenty-three 1,500-watt floodlighting projectors, which are used to illuminate the lower part of the building. Above these, and installed at various windows, are some 500 "Gecoray" reflectors installed in special fittings. These are equipped with lamps of various consumptions ranging from 50 to 150 watts. No colour is here employed and the effect is contrived solely by variation in the light furnished by the concealed reflectors. Along the colonnade upwards of seventy 500-watt units are installed.

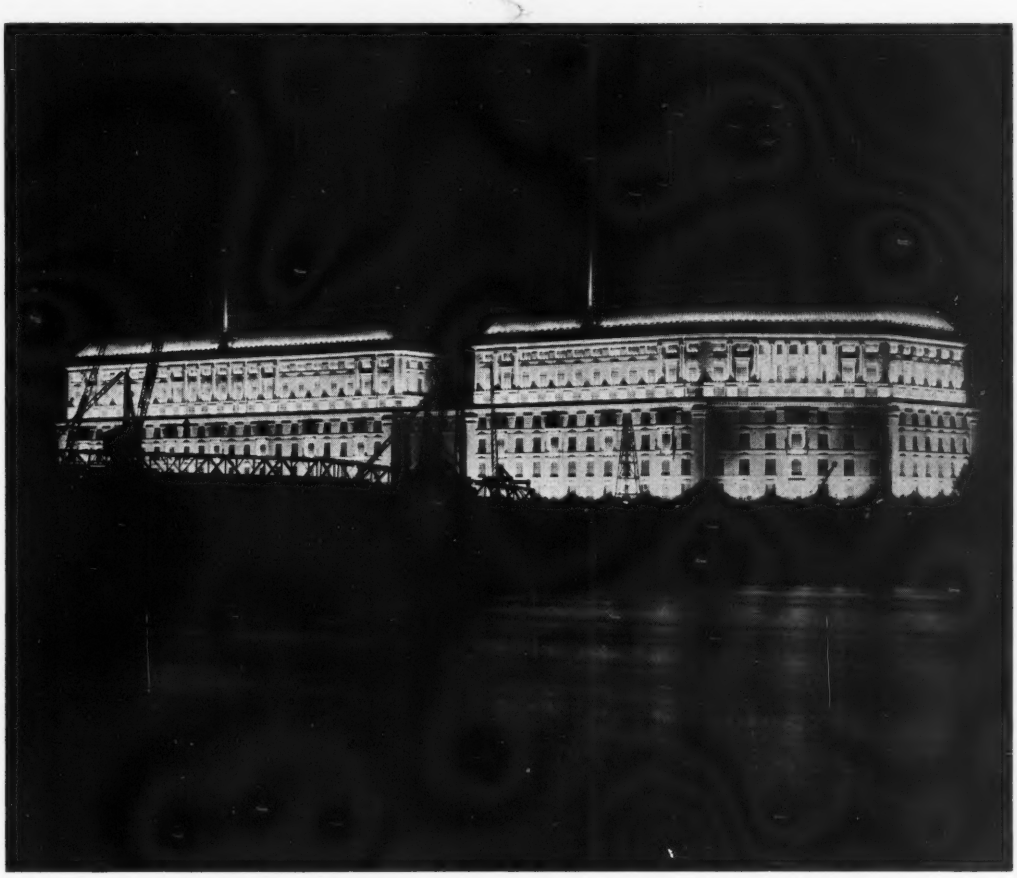


FIG. 6.—A fine Night View showing the appearance of Thames House, Millbank, floodlighted.

It is believed that this exceptional installation will be of distinct interest to visitors from abroad. Another striking installation, but of an entirely different character, is the floodlighted Carreras Building, Arcadia House, in Hampstead Road. The remarkable feature of this installation is a series of colour-changes from amber to green light, the cycle of changes occupying about one minute.

The Horse Guards Buildings and War Office

The lighting of these buildings, which form the background to the famous view from the bridge across the lake in St. James's Park, is being undertaken by Mr. John I. Hall.

The Horse Guards Buildings furnish a somewhat exceptional problem, as the apparatus cannot be placed on the Parade Ground and must be located at a considerable distance. It was finally decided to place the projectors on the Admiralty Buildings and the Foreign Office, from which beams respectively 380 ft. and 680 ft. long, and at heights of 80 ft. and 110 ft., are projected in opposite directions. The beams meet and cross each other at a height of 50 ft. above the Parade, 100 ft. from the buildings, thereafter combining to spread a flood of illumination over an area of 420 ft. long and 30 ft. in depth.

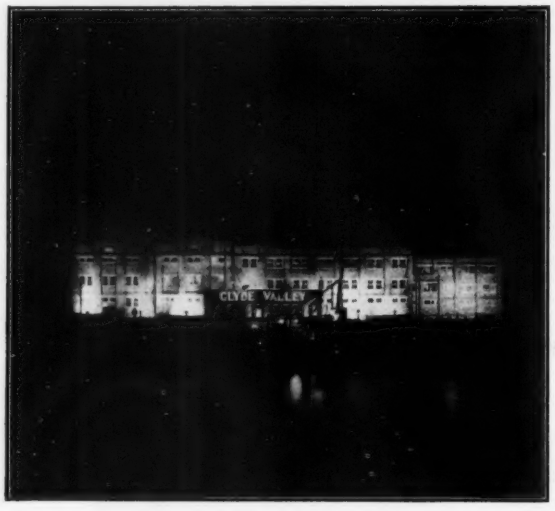


FIG. 7.—An Impressive Floodlighting Installation at Glasgow.

The upper façades and towers of the War Office are illuminated by specially constructed projectors located in suitable positions on the opposite side of Whitehall, respectively on the Admiralty and Scottish Office Buildings. It is stated that thirty 100-watt parabolic and spherical projectors will be installed for the whole scheme of illumination. These projectors are of special design and have interesting features, such as the fact that the ratio of the axes of symmetry can be readily varied, and either round or asymmetrical beams projected. Another characteristic is that only the reflected light is projected therefrom, the direct light rays being cut off and confined within the projector barrels, so that the ground and objects adjacent thereto are left in complete darkness.

Installations in Some Other Cities

Whilst a special effort is being made to provide London with striking examples of floodlighting during the period of the Congress, it should not be supposed that other cities will be idle, and in fact there will be a festival of light throughout the country. In Fig. 7 we reproduce a view that has just reached us of an impressive piece of lighting in Glasgow—another riverside site which is admirably adapted for floodlighting.

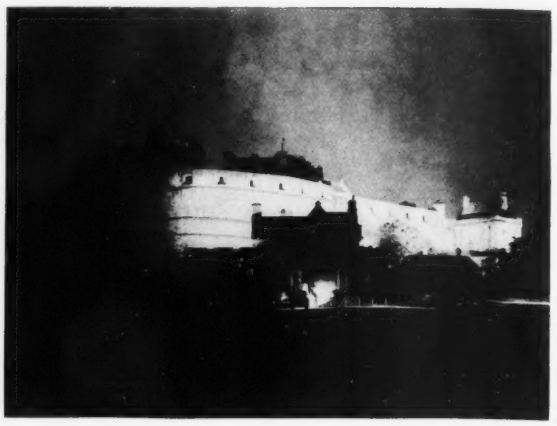


FIG. 8.—A Striking View of Edinburgh Castle Floodlighted.

In Fig. 8 we present a picture of the floodlighting of Edinburgh Castle, perhaps the most ideal subject of the whole series, situated as it is on a rocky eminence, but one of vast dimensions requiring great expenditure of energy, and demanding the concerted efforts of several of the firms mentioned in our list on p. 208.

In Fig. 9 we show again the very successful floodlighting of Rochester Castle, recently undertaken by the Illuminating Engineering Department of the Edison-Swan Electric Co. Ltd., who are likewise dealing with Somerset House, in London.

We hope in our next issue to give fuller details of many of these installations, and we invite firms and authorities throughout the country to send us particulars and illustrations, so that a worthy record of this great effort in the cause of better lighting may be preserved.

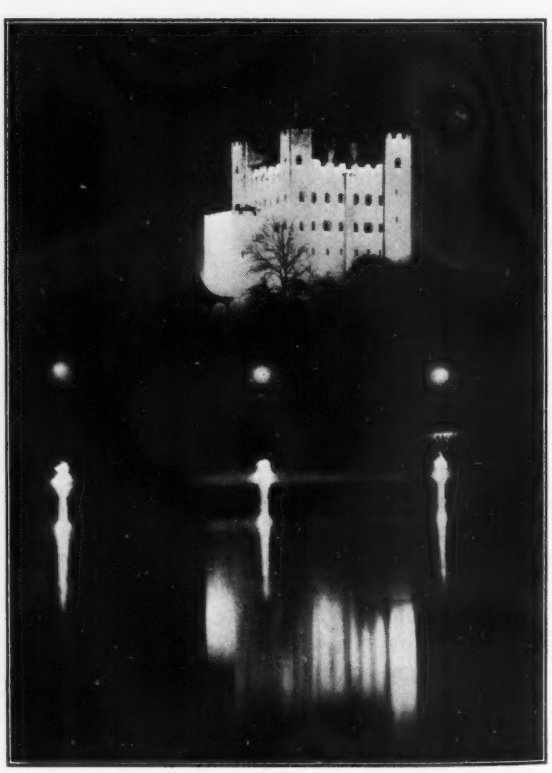
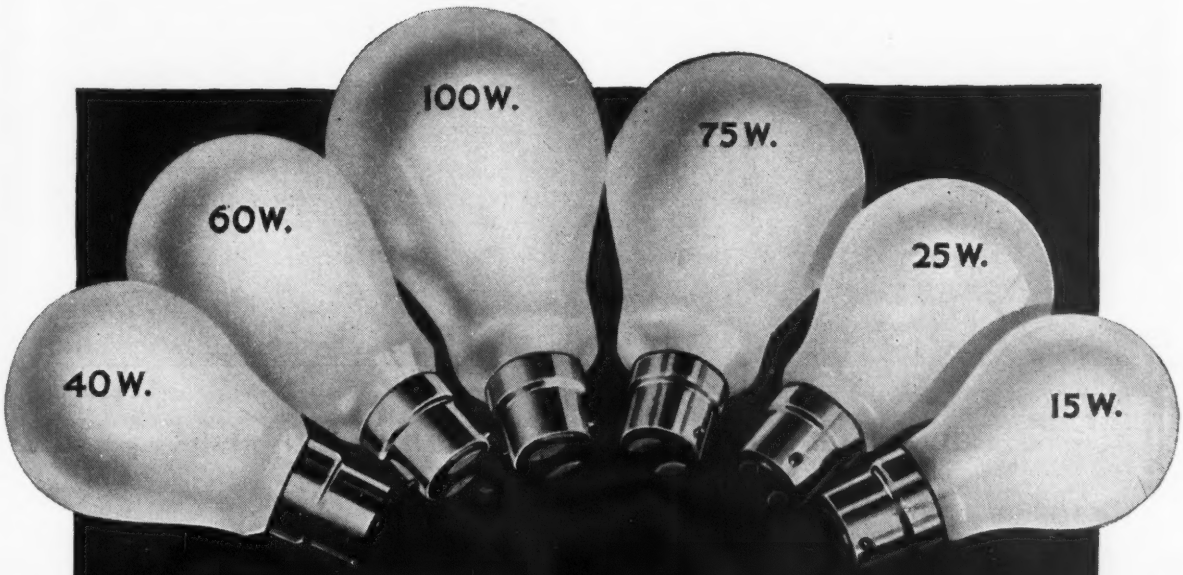


FIG. 9.—The Floodlighting of Rochester Castle (described in *The Illuminating Engineer*, June, 1931, p. 141).



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Landscape and Flower-bed Lighting by Gas in St. James's Park

DURING the time the International Illumination Congress is holding its sessions, certain parts of the beautiful St. James's Park—flower-beds, trees, lawns and lake—will be illuminated at night-time by a large number of specially designed gas lamps and projectors.

The term "floodlighting," in the generally accepted sense of the term, is scarcely applicable to the lighting scheme adopted in the Park. "Landscape lighting" conveys more accurately the type of lighting provided. The lighting units adopted incorporate much of the recognized technique relative to floodlighting, which in practice means the projecting of a flux of light in such a way as to produce a more or less even illumination, of an intensity of some 10 to 15 foot-candles, over the surface to be illuminated. In the design of the lighting units for St. James's Park, however, the aim has been not so much to attain even illumination on the trees, lawns, shrubs, and flower-beds as to give a striking and pleasant rendering of the scenes in light and shade.

An idea of the general scope of the scheme will be gathered from the map of St. James's Park, Fig. 1. On this map are figures, each indicating the position of a flower-bed, lawn or the like which is being specially illuminated. Before giving further details of the sections of the Park so illuminated a brief description may be given of the lighting units employed.

These consist of:

(1) *Gas lamps*, with either six or twelve low-pressure inverted mantles, arranged in a line. These lamps have been supplied by Messrs. Foster & Pullen; and

(2) *Gas projectors*, with light-sources consisting of ten low-pressure inverted mantles. These projectors were designed by the technical staff of the Gas Light & Coke Company and made by Messrs. William Sugg & Co. Ltd.

Gas Lamps and Types of Reflector.

The gas lamps referred to are fitted with five different types of reflector, as follows:—

Type A.—A reflector as in Fig. 2 which shows the complete lighting unit. Lamps with such reflectors are used for general illumination, such as the lighting of shrubberies and moderately high trees.

Type B.—Another reflector, somewhat similar to Type "A," but carrying, in addition, refracting plates made by Messrs. Holophane Ltd. This type

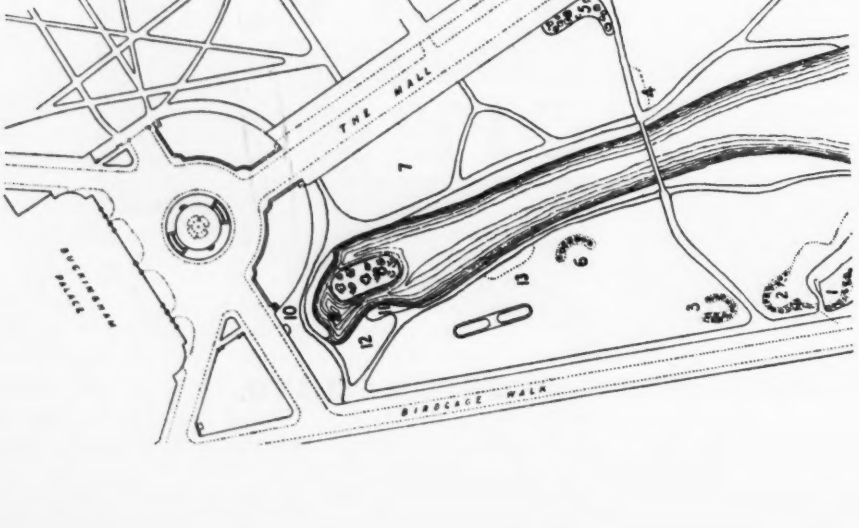


FIG. 1.—Plan of St. James's Park. For description of landscape lighting by gas, see main text of article.

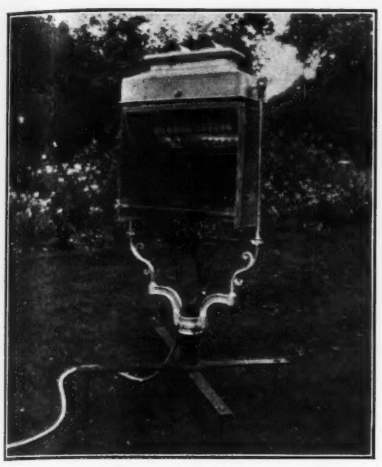


FIG. 2.—Gas lamp with "A" type reflector.

FIG. 3.—Gas lamp with "C" type reflector.

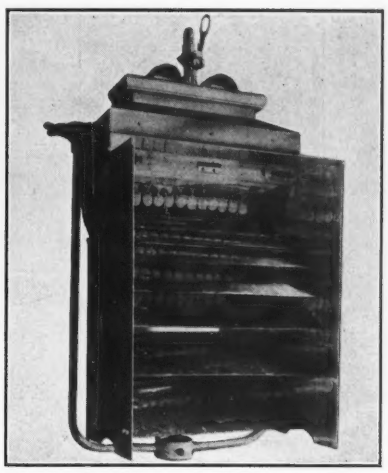


FIG. 4.—Gas lamp with "E" type reflector.

is used for flower-bed lighting. An illustration is not yet available, but a polar curve showing the distribution of light in both the horizontal and vertical planes from a lamp so equipped is shown in Fig. 5.

Type C.—A reflector as shown in Fig 3 is used for illuminating the upper branches of the taller trees.

Type D.—A reflector of "Staybrite" steel specially designed to give a distribution somewhat similar to that shown in Fig. 5, but without involving the use of refracting plates as in Type "B." (No illustration yet available.)

Type E.—Fig. 4 shows another type of reflector, making use of a series of slats of "Staybrite" steel. These slats can be rotated about an axis or moved backwards or forwards to obtain variations in the distribution of light from the source. The polar curves shown in Fig. 6 indicate two variations in the distribution of light obtained by altering the position and angles of the slats, as well as the distribution from the bare source.

Gas Projectors.

Fig. 7 shows a type of gas projector. The projectors which are actually used in St. James's Park are not exactly on these lines, many improvements on the type shown having been effected. These will be referred to in detail in another issue of the *Illuminating Engineer.*

All told, about one hundred of the lamps and projectors as described above will be used for the illuminations in St. James's Park.

Referring now to the map of St. James's Park, Fig. 1, the following are, roughly, details of the units employed for the illumination of the sections of the Park specially chosen for treatment:—

Position 1.—This is a flower-bed which can be viewed from Birdcage Walk. In the foreground is a mass of dahlias, and in the background a shrubbery. The bed is illuminated by two gas projectors and two Type "D" lamps fitted on 12 ft. posts attached to the park railings. Preliminary tests indicate that the illumination on the beds on a plane vertical to the rays will be approximately 3 foot-candles.

Position 2.—This is somewhat similar to Position 1, and is lighted by six Type "D" lamps mounted on the park railings at a height of 12 ft. from the ground.

Position 3.—Similar to Positions 1 and 2. The lighting is by four Type "B" lamps mounted on 12 ft. posts and two Type "A" lamps on low mountings fixed in the turf. (Note: The methods adopted for lighting Positions 2 and 3 are alternative methods for securing somewhat similar results.)

Position 4.—This is a flower-bed situated on the Mall side of the suspension bridge. It is lighted by two 12-light Type "A" lamps and one 6-light Type "A" lamp on low mountings. The result is somewhat similar to that achieved in Positions 2 and 3.

Position 5.—This is a flower-bed at the entrance of the Mall. The lighting is by five 12-light Type

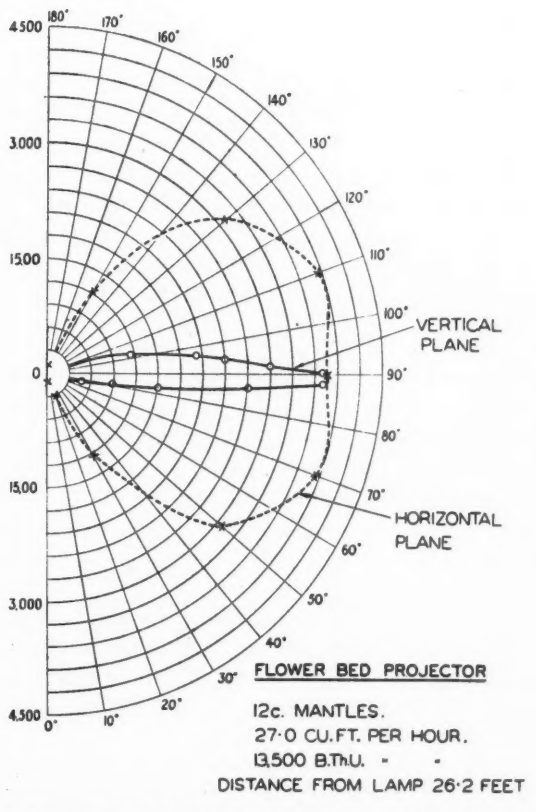


FIG. 5.—Polar curve showing the distribution of light in both the horizontal and vertical plane from a gas lamp with "B" type reflector.

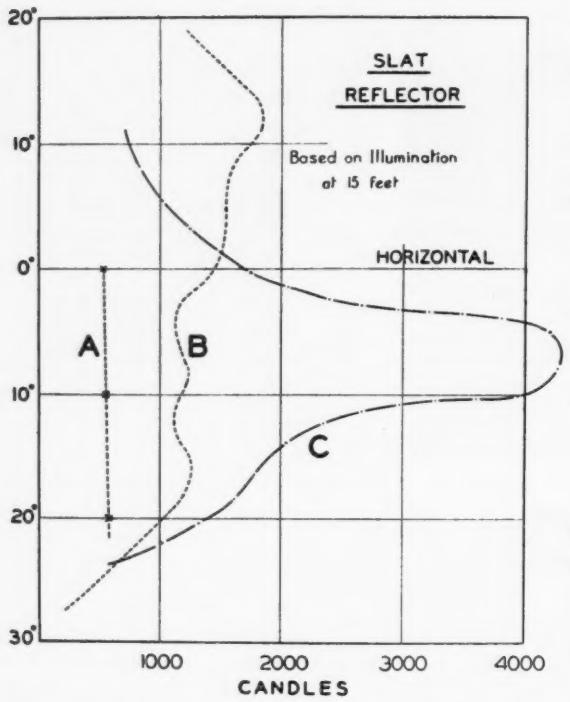


FIG. 6.—Curves showing two variations in distribution of light obtained by altering position and angles of the slats with the "E" type reflector shown in Fig. 4, as well as the distribution from the bare source.

"A" lamps and three 6-light Type "A" lamps on low mountings.

Position 6.—This is a flower-bed on the Birdcage Walk side of the lake, and is best viewed from the Mall. It is lighted by four 12-light Type "C" lamps and six 12-light Type "A" lamps mounted on low stands fixed into the turf.

Position 7.—This may be regarded as lawn lighting. The illumination of the trees is effected by six 12-light Type "C" and twelve 12-light Type "A" lamps. In addition six gas projectors are used. The lawn is best viewed from the Mall.

Positions 8, 9, 10, 11, 12 *and* 13.—These positions may be regarded as composing the section chosen for landscape lighting, as viewed from the Buckingham Palace end of the Park. Position 8 is the island in the lake. The high trees and overhanging branches are lighted by five gas projectors, four 12-light Type "C" and six 12-light Type "A" lamps. These lamps are on low mountings fixed into the turf. Position No. 9, at the time of the preparation of these notes, is a little indeterminate. Six floats will be placed on the water at the most suitable points to light up features of interest. No. 10 is the position from which the illumination of the flower-beds at the end of the lake and of the trees on the outer edge of the island is carried out. About ten lamps are used for this purpose, some mounted 6 or 7 ft. above ground level, the remainder fixed on stands in the turf. In Position No. 11 three or four lamps are arranged among the shrubs to illuminate the foliage on that side of the island. Position No. 12 is a lawn on the Birdcage Walk side of the lake. Three 12-light lamps with Type "C" reflectors, four 12-light lamps with Type "A" reflectors, three 6-light lamps with Type "C" reflectors, and four 6-light lamps with Type "A" reflectors are used here. The lamps are used mainly to illuminate the trees on the lawn. Position No. 13 indicates a section bordering on the lake where a few additional lamps will be placed, the object being the illumination of high trees and the "picking out" of the lower branches which can be seen from the Buckingham Palace end of the lake.

As these notes have been prepared before the final distribution of lamps has been definitely decided upon, it will be understood that the descriptions may not be absolutely accurate in every detail. The system of lighting is sufficiently elastic to allow of last-minute variations, as practical experience may dictate.

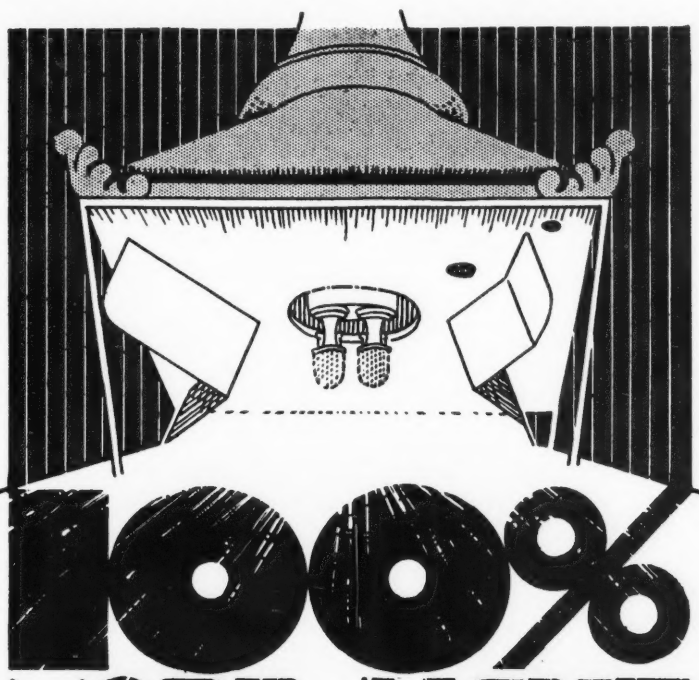
How to Inspect the Gas Lighting.

The best means of inspecting the illumination of the Park is to walk along Birdcage Walk in the direction of Buckingham Palace. Flower-beds 1, 2, and 3 are visible from Birdcage Walk. Turning right at the end of Birdcage Walk, the best view of the landscape lighting is obtained. This is the view which attracted so much attention during the experiments carried out on the 21st July last.

Passing, then, along the Mall, a second glimpse is obtained of the same scene, which should be equally pleasing. Next the lighting of the lawn (Position 7) comes into view. Proceeding along the Mall, the lighting of flower-bed 6 may be viewed. A turn to the right to cross the suspension bridge will bring flower-beds 5 and 4 into view. Continuing onwards, beds 2 and 3 will again be seen.

It is hoped in a later issue to give further constructional details of the lamps and projectors used, and also additional distribution curves obtained from the various units.

FIG. 7.—A gas projector somewhat similar to the improved type of projector used in St. James's Park.



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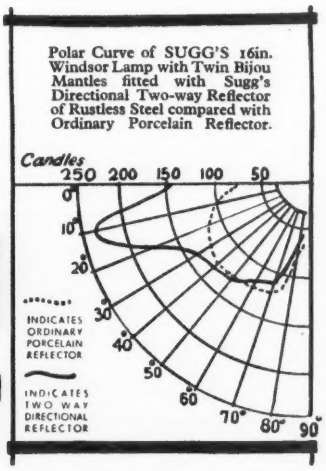

Polar Curve of SUGG'S 16in. Windsor Lamp with Twin Bijou Mantles fitted with Sugg's Directional Two-way Reflector of Rustless Steel compared with Ordinary Porcelain Reflector.

SUGG'S Directional Reflector

SUGG WESTMINSTER

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RANELAGH WORKS
CHAPTER STREET
WESTMINSTER

Whitehall
Class "A" Gas Illumination

IT is not possible at the moment to give full details of the special arrangements made for the brilliant lighting of Whitehall by gas during the visit to this country of delegates to the International Illumination Congress.

It may be said, however, that the idea is to light the section of Whitehall shown in Fig. 1 between Horse Guards' Avenue and King Charles Street by means of some twenty-nine columns, each carrying three lamps arranged as shown in Fig. 2. Each column will be equipped with one central 3-light high-pressure gas lamp of 4,500 rated candle-power and two 2-light lamps of 3,000 rated candle-power. The polar distribution curves of these two sizes of lamps are given in Figs. 3 and 4.

The columns marked as dark dots on the street plan (Fig. 1) are new columns. The others are the existing columns. All will be equipped with the three lamps described, which are made by Messrs. James Keith & Blackman Co. Ltd.

The height of the mantles in these lamps will be approximately 29 to 30 feet above street level. Special controls for lighting-up and extinguishing are being arranged, of which it is hoped to give details later.

Isolux diagrams for the whole of the section of street specially lighted are being prepared (for publication at a later date) and are based on the assumption that the service candle-power of the 2-light lamps is 2,200 and of the 3-light lamps 3,300.

It is confidently expected that the service illumination at the test points (i.e., points of minimum illumination) will be of the order of 2½ foot-candles.

The high-pressure gas lamps will taken their supplies from the high-pressure mains from which the gas for the lighting of Whitehall is normally taken, the working pressure being about 100-120 ins. water gauge.

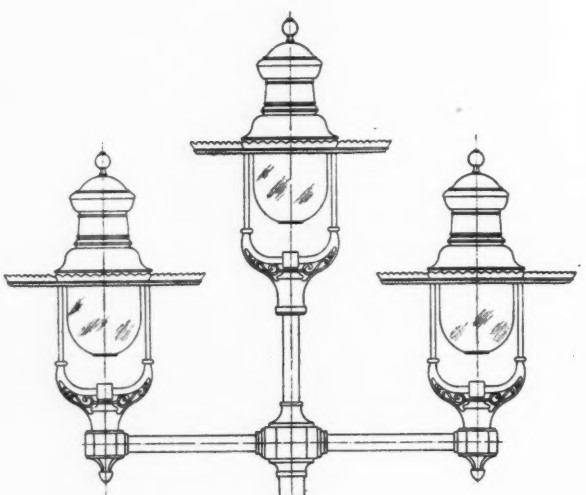

FIG. 2.—Elevation of high-pressure gas lamps as fixed on the 29 columns used for the special lighting of Whitehall from Horse Guards' Avenue to King Charles Street. The central lamp has a rated candle-power of 4,500, and each side lamp of 3,000.

The Chairman of the Lighting Committee of the Council of the City of Westminster very kindly gave permission for this interesting piece of illuminating engineering to be put in hand, and Mr. L. J. Veit, C.E., F.S.I., the City Engineer and Surveyor, has offered every facility for the carrying out of the work involved.

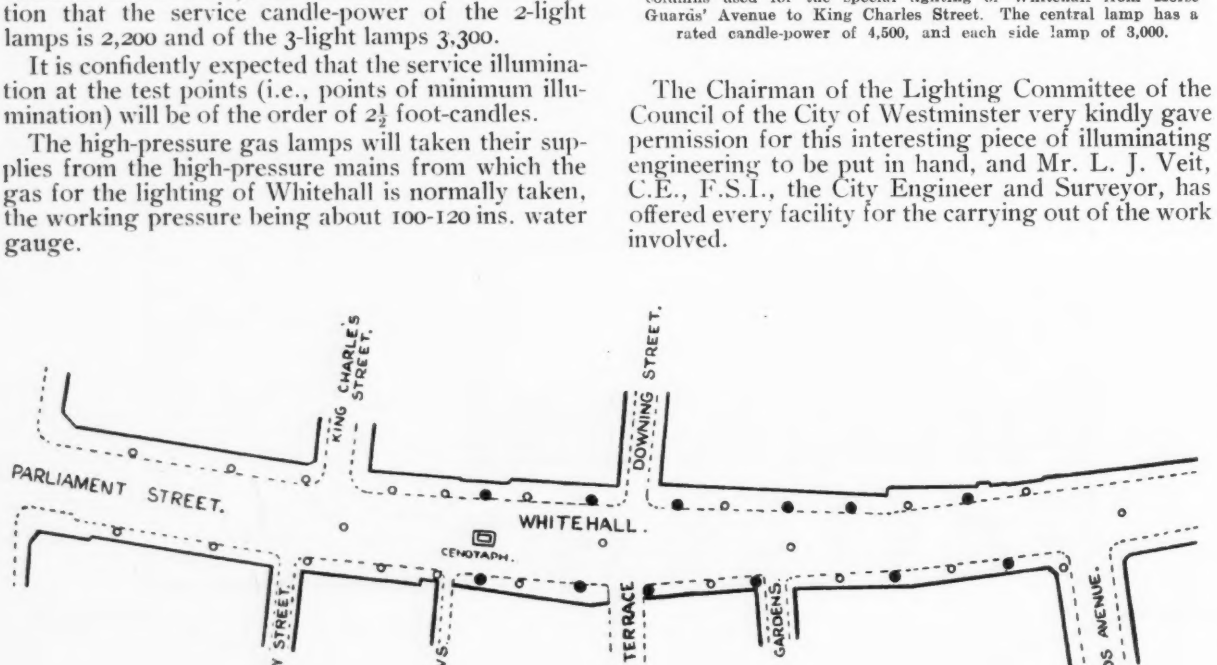

FIG. 1.—Plan of Whitehall, showing the section from Horse Guards' Avenue to King Charles Street specially lighted by high-pressure gas lamps which will provide an illumination in accordance with Class "A" of the B.E.S.A. Specification. For further details see main article.

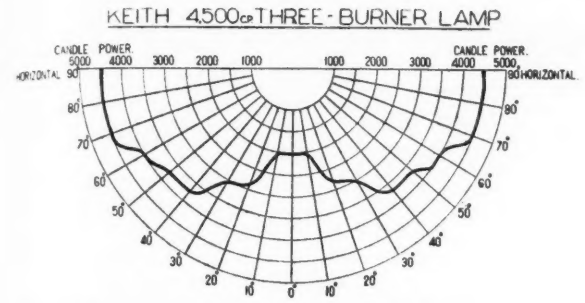

FIG. 3.—Polar curve showing distribution of light from the 4,500 candle-power high-pressure gas lamp.

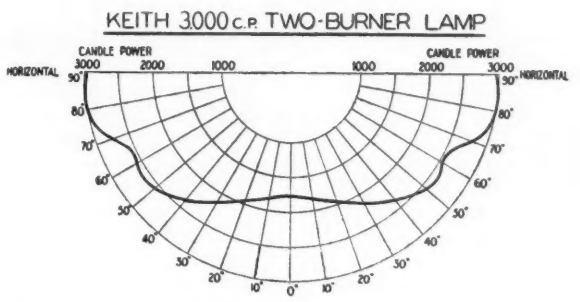

FIG. 4.—Polar curve showing distribution of light from the 3,000 candle-power high-pressure gas lamp.

Watson House

(To be Visited by Delegates to the I.I.C. on Sept. 2nd)

WATSON HOUSE is the research, testing and training centre of the Gas Light & Coke Company connected with the utilization of gas. Conference visitors will find in addition to the normal work of the department a special exhibition of indoor, street and flood lighting which has been made possible by the temporary vacation of some rooms in the building.

The indoor-lighting display on the ground floor has been planned to demonstrate the flexibility of gas as an illuminant by an exhibition of typical lamps accompanied in most cases by polar curves and illustrations of actual large-scale installations. Separate sections will be devoted to domestic, industrial, office, shop and school lighting.

The street-lighting exhibition on the first floor, while conventionally arranged in the form of a series of modern streets, is concerned primarily with showing the units rather than providing an exhibition of lighting. Miniature roads are, however, laid down with posts at every corner, gas-lighted traffic signs at the cross-roads and centrally suspended lamps with actual lowering and traversing gear. Both directive and non-directive types of lamps will be shown—the former including three or four recent experimental developments. Various forms of switch and clock control will also be demonstrated.

In the adjoining room visitors will be able to inspect more closely the several patterns of special lamps developed by the Watson House staff for the landscape and flower-bed lighting in St. James's Park. While some of these are obviously quite specialized in character it is hoped that they may be of interest.

Passing one of the training shops on the second floor the photometric laboratory will be visited on the third floor. Here the normal routine work of the Company is carried out, such as testing of mantles, distribution curves of lamps, design of new burners, signs, etc. There will also be demonstrated a method of tracing the course of the products of combustion, the effect of dust on injectors, spectro-photometric analysis of light, and other exhibits typical of the work carried out by the section.

On this floor will also be found the research and testing work connected with other gas appliances, such as cookers, water-heaters, fires, etc. Normal methods of test will be shown, together with certain new developments in such appliances. The methods used for the testing and inspection of stores bought by the Company will also be demonstrated.

Other Visits of Interest

We gladly give the accompanying particulars furnished to us in regard to Watson House, which is perhaps less widely known to our readers than some of the other places to be visited during September 1st and 2nd. We may recall, however, that in addition to tours of modern lighting installations and sight-seeing amongst historic buildings and places of interest the E.L.M.A. Lighting Service Bureau, the showrooms of the Gas Light and Coke Company, the Research Laboratories of the General Electric Co. Ltd., at Wembley, and the Holophane Co.'s demonstration theatre are all on the visiting list. A special trip to the National Physical Laboratory on Wednesday afternoon has also been arranged.

Members of the Illuminating Engineering Society can testify to the interest of all these items. They are all well worth inspection, though we fear that none of our guests, with the best will in the world, will be able to squeeze in visits to all of them in addition to their other sightseeing.

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Progress in Illuminating Engineering in the U.S.S.R.

By SLOKHAY-NATALCHENKO (Kharkov)

DURING the period 1921-30 illuminating engineering has made great progress in the U.S.S.R. (Union of Soviet Republics). The vital part played by illumination is now a recognized fact; good lighting is regarded as important in all branches of industry, and especially as a means of improving safety and health. It is necessary, however, to bear in mind that for the time being few workshops and factories are really well lighted. Previous to the war there was only one electric lamp factory in Russia. There were no factories for the manufacture of lighting fittings. Also there were no laboratories—other than those available for students—suitable for research on illumination.

At present there are quite a number of laboratories interested in illumination in Leningrad, Kharkov, Moscow, and other cities. In Leningrad, at the Bureau of Weights and Measures, there are standard lamps calibrated by comparison with lamps from other countries. In this laboratory standard lamps constructed on a new principle (see Fig. 1), new types of illumination photometers, and many forms of photometric appliances have been developed. At this laboratory, also, researches on

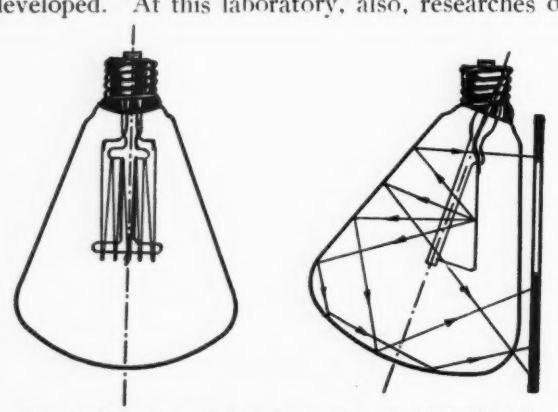

FIG. 1.—New type standard lamp. Eng. P. M. Tikhodeev's construction.

photometric test plates, etc., have been conducted, and in other laboratories much research work is being done. Quite a number of factories are now producing illumination-photometers. In 1923 and subsequently a number of research and testing laboratories were organized, such as those of the Illuminating Engineering Society at Leningrad (1923), Moscow (1927), and Kharkov (1929). In order to preserve a record of work carried out in the field of illumination the Scientific and Technical Department of the Supreme Council of National Economy assembles congresses on this subject periodically.

FIRST ILLUMINATION CONGRESS IN U.S.S.R.

The first such Illumination Congress took place in Moscow on August 16th, 1927, and was attended by 110 delegates, representing 44 different establishments. In all twenty-six papers were read.

Of special interest was Mr. P. M. Tikhodeev's paper on a "Lighting Code and Rules for the Adequate Lighting of Workshops."* The rules suggested in this paper, after receiving the approval of the Congress, served as a basis for the decree made by the People's Labour Commissariat in 1928 bearing on the lighting of Factories, Workshops, and other working premises. This still serves at the present time as a guide to the equipment of all new lighting installations.

This Code specifies a minimum illumination on the working area which, however, varies according to the coefficient of reflection of the material used and the degree of fineness of the work, expressed in terms of the visual angle submitted by the objects examined. The Code is also furnished with a considerable amount of explanatory matter. Besides the recommendations in regard to intensity of illumination (summarized in Table I), requirements in regard to uniformity of illumination, and avoidance of troublesome shadow and glare are also stated.

TABLE I.

MINIMUM ILLUMINATION IN LUX.*

Nature of Manufactured Articles	*Fine Processes* *Visual angle not exceeding* 1/1000	*Visual angle exceeding* 1/1000	*Processes not involving the observation of small details*
Very Dark Material (Co-efficient of Reflection 0·5 to 6%)	200	100	50
Dark Material: (Co-efficient of Reflection 6 to 20%)	100	60	30
Grey Material: (Co-efficient of Reflection 20 to 50%)	75	45	20
Light Material: (Co-efficient of Reflection 50% or over)	50	30	20
Material or Machinery that is dangerous and liable to be touched, etc.: parts of manufactured articles or machinery about 5 cms. square	—	—	100
Ditto, for sizes greater than above ..	—	—	60
Lavatories, Baths, Shower Baths, etc.	—	—	50 (On floor)
Dressing Rooms ..	—	—	25 (On benches)
Passages through working premises	—	—	10 (On floor)
General passages, entrances and exits, staircases	—	—	8 (On floor)
Yards, gateways, etc.	—	—	2 (On ground)
Explanatory or warning notices ..	—	—	100

* 1 lux is approximately equivalent to about 1 foot-candle.

Other papers were devoted to such matters as lighting in relation to transport and the lighting of machine workshops, textile mills, etc. In addition reports were presented and approved on the following subjects: "Codes for the Lighting of Hospitals," "Standards for Electric Lamps," "The Basis of Illumination Nomenclature," "The Manufacture of Illumination Photometers," "Precision of Photometric Measurement," "Natural Lighting," "The Economics of Electric Lighting," "Floodlighting Design," "The Manufacture of Lighting Fittings."

On the same occasion there took place at Moscow the First Exhibition of Lighting and Illumination, at which many exhibits of Russian and foreign origin were on view.

SECOND ILLUMINATION CONGRESS HELD IN U.S.S.R.

The Second Illumination Congress was held in Moscow on December 23rd, 1929. On this occasion there were 250 visitors, and as many as 80 papers were read (26 at the plenary meeting and 54 at

* P. M. Tikhodeev, "Illuminating Engineering in the U.S.S.R. during 1921 to 1927," *Electritchestvo*, No. 1, 1927, p. 404.

branch meetings). Owing to the large number of representative papers and the limited time available for the Congress (five days) the proceedings were divided up into five sections, dealing with:

(1) Rationalization of Lighting.
(2) Lamps and Lighting Appliances.
(3) Codes of Lighting and Nomenclature.
(4) Physiology of Vision.
(5) Lighting Education and Propaganda.

Professor M. A. Chatelain, who was elected President, delivered an address, in which he referred to the great increase in interest in illumination that had taken place in the U.S.S.R. during recent years. Dealing in turn with various topics that had received special attention since the first Congress, he drew attention to the progress achieved in standardizing natural and artificial lighting, in the study of the physiology of vision, in the economics of lighting, and in the application of floodlighting and the design of lighting fittings—all subjects of considerable importance. Professor Chatelain also reported to the Congress on the part to be played by the Society in the International Commission on Illumination and the International Committee concerned with Measures and Standards. Reports were presented on the following subjects: "The Basic Problem of Lighting Technics in the Five-Years Plan of National Economy," by Professor M. I. Lapiroff Skoblo; "The Development of the Manufacture of Lighting Equipment in relation to the general development of the Electrical Industry," by D. P. Friedman; "Prospective Developments in the Manufacture of Lighting Fittings," by S. I. Berman; "The Present Condition of the Lamp Industry and Future Developments," by P. Ivanoff.

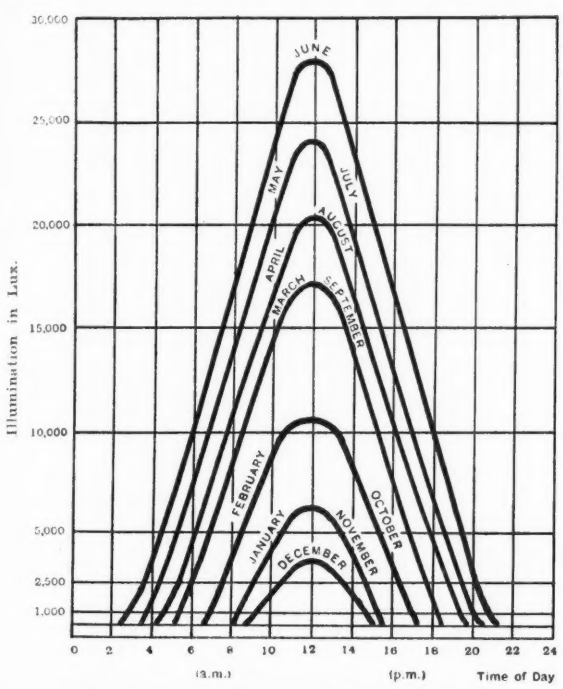

FIG. 2.—Daylight Illumination of a horizontal surface.

According to the plans prepared for the manufacture of lighting equipment the value of the output should increase from 16 million roubles in 1928-9 to 160 million roubles in 1932-3. It is hoped to obtain this advance by building co-ordinated factories in Moscow devoted to various sections of the lighting industry, such as—(1) searchlights, (2) production of tungsten and molybdenum, (3) electric lamps, (4) fittings, (5) glass. Associated with this combination of factories will be a Lighting Institute, including research laboratories. Simultaneously with this increase in the manufacture of electric lamps and lighting equipment, it is anticipated that the consumption of electricity for lighting will advance from 600 million units in 1928 to 3,500 million units in 1932-3, lighting being thus responsible for the use of 25 to 30 per cent. of the electricity generated.

Reports on Natural Lighting were presented by A. A. Gershun and Professor N. N. Kalitin, who emphasized the need for systematic measurements of daylight and sunlight. Such records have been taken at Sluzk, near Leningrad, since 1922, and further developed in 1925 when recording photo-electric cells were installed. In Fig. 2 typical records obtained over a period of five years are presented.

Mention may next be made of a series of papers and reports dealing with industrial lighting, such as those of A. A. Truhanov on "The Rationalization of the Lighting of Clothing Factories," and B. P. Meskhkov on "Typical Systems of Lighting in Textile Mills." Instances of improvements resulting from better lighting were mentioned. Thus, at the Peter Anicemov cotton mills in Leningrad an increase in illumination from 45 to 100 lux has led to a 12.7 per cent. increase in output. At the "Red Banner" mills, near Moscow, an improvement in illumination of from 12 to 80 lux has been accompanied by an increase in output of 5.37 per cent. Again, in Dr. Smelanski's report on Lighting in relation to Production, it is recorded that by bringing the lighting of certain textile mills up to the standard prescribed in the Russian Lighting Code an increase in production of 4 to 5 per cent. was secured, whilst the time lost in "disconnected" operations was reduced to 25 to 30 per cent. At the present time good lighting is installed in most textile mills. Figs. 3 and 4 will serve to show the general nature of the methods employed in the "Red Lighthouse" mills at Leningrad. At this Congress Codes of Lighting for the following were discussed and approved: (1) Mills, Factories and other Work Places; (2) Hospitals, (3) Schools, (4) Railways, (5) Electric Generating Stations and Sub-Stations, (6) Open Spaces, (7) Streets and Roads, (8) Military Establishments, (9) Warships, and (10) Vessels in the Mercantile Marine.

FIG. 3.—Showing typical overhead lighting in the "Red Lighthouse" Mills in Leningrad.

Papers were presented by Professor S. O. Mysel and B. F. Fedorov, L. D. K. Belkind and S. M. Demchinko, relating experiences in applying the

industrial lighting code which was made compulsory in 1928. Numerous other papers were presented giving details of lighting installations and analysing costs of equipment. Reports by P. F. Martinov and M. V. Sokoloy on "Nomenclature in Illuminating Engineering" included definitions of 212 terms, translations in French, German and Ukrainian being appended. Professor M. A Chatelain and P. M. Tikhodeev reported on the comparison of standards used in the U.S.S.R. with those of other countries. Other contributions by the same authors dealt with developments at a series

FIG. 4.—Another view taken in the "Red Lighthouse" Mills.

of different accredited laboratories throughout Russia at which uniformity of practice in measurement has been attained. About eight other papers dealt with photometric processes, calculations and planning of installations, graphical methods, etc. A paper by V. F. Lugovski and V. V. Debovski described floodlighting installations in industry and for aerodromes, and P. I. Petrov dealt with night-lighting for the air-post line from Moscow to Irkutzk. Other papers dealt with Cinema Technics and with the lighting of the National Works for the Production of Agricultural Machinery at Rostov-on-Don. The lighting load amounts to 1,850 kw.; there are upwards of 10,000 lighting points and 200 kilometres of cables in use. The average consumption is 10 watts per square metre of floor space and the resultant illumination 60 to 100 lux.

At this Congress plans for the lighting of many new factories were discussed, amongst which may be mentioned those indicated in Table II.

TABLE II.

Name of Works	Demand for Lighting Kw.
(1) "Metallic" Works (Leningrad)	1,270
(2) Nevski Works (Leningrad)	1,130
(3) Baltic Works (Leningrad)	5,500
Martini Works (Leningrad)	
Northern Dock (Leningrad)	
(4) Russian Siesel Works (Leningrad)	600
(5) "Red" Shipbuilding Works	300
(6) Engine Building Works (Sverdlovsk) ..	1,513
(7) Tractor Works (Stalingrad)	720
(8) Magnitogerski Works (Metallurgical) ..	2,030
(9) Krivoshzski Works (Metallurgical)	2,200
(10) Agricultural Implement Works (Rostov-on-Don)	1,800
(11) Tractor Works (Kharkov)	2,500

Amongst other miscellaneous topics that were the subject of report may be mentioned: The condition of the lamp industry; the position of works for fittings manufacture; the design of electric lamps; the adoption of silvered lamps for special purposes; the use of neon lamps in aviation; the properties of optical glass, etc. A report on Education and Propaganda in Illuminating Engineering was presented by Professor M. I. Lapiroff Skoblo, whilst M. E. Zellengov, B. N. Kianitz, and C. J. Nesmashny dealt with Specialization in Illuminating Engineering at Moscow, Leningrad and Kharkov, where engineering students are already specializing in illumination and are expected shortly to graduate and take up their work in this field of industry. It is anticipated that about 1,000 such experts in illuminating engineering will be required in the U.S.S.R. in 1932-33.

Yet other contributions dealt with physiological and psychological problems met with in connection with illumination.

It may be mentioned that at this Congress Professor Chatelain was elected President of the United Association for Laboratory Lighting Technique. This organization undertakes the planning out of all scientific research work in relation to illumination and photometry and its distribution throughout the laboratories of the U.S.S.R.

THIRD ILLUMINATION CONGRESS IN U.S.S.R.

We have yet to receive a report of the Third Illumination Congress held in the U.S.S.R., but we understand from Mr. Slookhay-Natalchenko that this was arranged to take place at Kharkov on April 20th.

Amongst others, the following topics were scheduled for discussion: (1) Lighting as a Factor in relation to Production, Safety and Health; (2) Lighting in the Mining Industry; (3) The Condition of Street Lighting and Industrial Lighting in Moscow, Leningrad and Kharkov; (4) Tariffs for Electric Light; (5) Choice of Voltage; (6) The Position of the Electric Lighting Industry; and (7) Scientific Reports.

The location of the Congress was expected to be helpful in enabling delegates to enquire into lighting in the mining industry, which at present is considered very backward in comparison with conditions in other fields of industry. Reports on this subject by numerous lighting laboratories were to be presented.

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[We much regret that, owing to the demands on our space by descriptive matter dealing with the International Illumination Congress, our popular item "Literature on Lighting" is unavoidably omitted from this issue. Readers may rest assured that this item will not be allowed to lapse, but will be restored in our next number.—ED.]

POPULAR & TRADE SECTION

COMPRISING

Installation Topics—Hygiene and Safety—Data for Contractors—Hints to Consumers

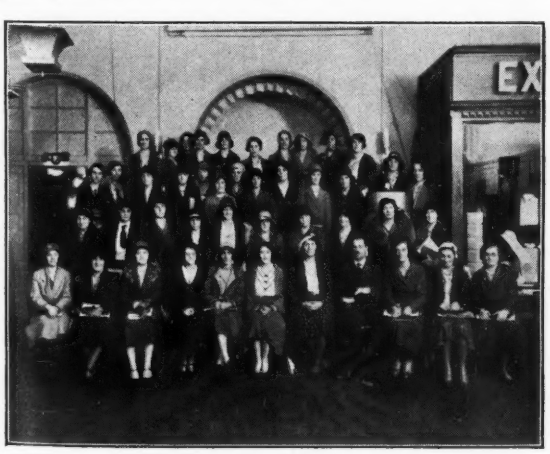
(The matter in this section does not form part of the official Transactions of the Illuminating Engineering Society and is based on outside contributions.)

Lighting Instruction for Domestic Science Mistresses

(Communicated)

AS a part of the fortnight's course on "Electricity Applied to the Home," arranged by the Board of Education Summer School for Domestic Science Mistresses, a one-day course was given at the E.L.M.A. Lighting Service Bureau on August 10th.

The visitors were received by Mr. C. W. Sully, Director of the E.L.M.A., and the first lecture, "How to Give Lessons in Illumination," was delivered by the Manager of the Bureau, Mr. W. J. Jones. This was followed by a talk by Miss D. M. Noakes, Home Lighting Specialist, on "Home Lighting." After lunch Mr. S. Anderson, B.Sc., spoke to the visitors on "School Lighting." A tour of the Bureau was made before tea, and the general discussion which followed showed that the visitors took a keen interest in the subject of electric lighting.



A Group of School-Mistresses who attended the "Electricity Applied to the Home" Course.

The value of such courses as these cannot be overestimated, for by getting in touch with those who are in a position to influence the opinions of students the Lighting Service Bureau is spreading the gospel of good lighting in a most effective way. It is suggested that such initial efforts should be followed up locally by supply Associations. Local undertakings are in a position to get into touch with educational bodies and schools in their own area, and much valuable work could be done in this direction.

The photograph shows the group of mistresses who attended the course.

Sign-Makers' Problems in Australia

We notice in *Signs* a reference to the difficulties experienced by sign-makers in Australia, who have to contend not only with financial depression, but with exceptional legislative difficulties. In March, 1927, a Bill was passed in Parliament giving the Country Roads Board absolute power to control or prohibit signs. Tradesmen, it is stated, were ordered to remove their signs from their shops, petrol signs on garages had to be painted out—the removal of the legend "Beware of the Dog" from a farm-gate was even insisted upon. The grievance is to be ventilated in Parliament, and it is hoped that the veto will be withdrawn. Evidently the wide powers given to local authorities were exercised in an unduly drastic manner. At the same time we confess to some sympathy with those who do not desire our country roads to be disfigured by unsightly advertising devices, and we would like to see some degree of control exercised over the activities of petrol suppliers, some of whom contrive to make their presence unnecessarily evident.

Lighting for Non-Professional Stage Production

A serial article on the above subject by Mr. A. L. Powell and Mr. A. Rodgers has been running for some time in *Lighting*. It contains some effective pictures showing well-illuminated stage settings. The use of various forms of lighting equipment is discussed and some useful hints are given. In this country, as our readers have been made aware by Mr. Harold Ridge, there exist a surprising number of small theatres run by enthusiastic amateurs. We should imagine that there is quite a good opening for firms who will furnish lighting equipment suited to their needs. We have heard it said sometimes that firms in the lighting industry are apt to be somewhat disinclined to modify standard designs, such as are better suited to large commercial theatres, and do not realize that the funds of amateur dramatic societies are usually limited! In such cases one often has to manage with modest lighting equipment, but amateur producers become astonishingly apt at getting effective results with few implements. The main considerations for this class of work are usually that the apparatus must be robust, inexpensive and flexible.

Street Lighting with Electricity: Recent Investigations

An Increase of 163% in Eight Years

(Communicated.)

AN investigation was recently conducted by the E.L.M.A. Lighting Service Bureau with the object of demonstrating the part played by electricity in lighting the most important streets in the Metropolitan Area. It was felt that the High Streets and Broadways of Greater London represented for the most part the centres of commercial activity in their particular areas. A questionnaire was therefore sent to the authorities responsible for the lighting of each High Street and Broadway given in the Post Office London Directory. These comprised:—

High Streets:

Aldgate, Battersea, Bromley, Borough, Camden Town, Clapham, Deptford, Eltham, Fulham, Hampstead, Highgate, Homerton, Islington, Kensington, Kingsland, Kilburn, Lambeth, Lee, Lewisham, Marylebone, Notting Hill Gate, North Woolwich, Peckham, Plaistow, Poplar, Putney, Roehampton, Shadwell, Shoreditch, Stepney, Stoke Newington, Sydenham, St. John's Wood, Stratford, Tooting, Wapping, West Norwood, Whitechapel, Wandsworth.

Parade Lighting with Electricity at Eastbourne.

Broadways:

Deptford, Eltham, Hackney, Hammersmith, London Fields, Plaistow, Stamford Hill, Stratford, Streatham, Walham Green.

Out of this total of 49, it was found that 35 were completely lighted by electricity—that is to say, over 70 per cent. Of the remaining 14, Lewisham High Street is partially lighted by electricity, whilst Bromley High Street is at present having 500-watt centre suspension lamps installed.

This gives a fair idea of the proportion of important streets lit by electricity in the suburban and Greater London Area. In Central London most of the important thoroughfares are now electrically lighted—The Embankment, Piccadilly, Strand, Cheapside, Oxford Street, Baker Street, Tottenham Court Road, Kensington Road, to quote but a few.

Recent Conversions.

During the past few years several authorities in the London area have decided to adopt electricity for street lighting. In the Royal Borough of Kensington many streets are now being equipped with an up-to-date electric lighting system. Regent's Park has also recently adopted electric lighting. The decision to improve the lighting of the Embankment—where the new lighting, expressed in watts, is 150,000, as compared with the 33,500 of the old system—is yet another proof of the faith which local authorities place in up-to-date lighting.

The Position in the Provinces.

In the Provinces a similar position obtains. An official questionnaire recently sent out to supply undertakings obtained replies from 196. Forty-four of these stated that the street lighting within their area was wholly electric, while 86 of them had at least 75 per cent. of their street-lighting points electrified. The total number of street-lighting standards within the area of these 196 authorities is 446,000. (It has recently been estimated that the total number of street-lighting standards throughout Great Britain is 670,000, so that on that basis these results apply to no less than two-thirds of the standards used throughout the country.)

One lighting apparatus company alone declares that it is responsible for the equipping of over 1,000 miles of streets during the last few years with up-to-date electric fittings. This figure was estimated by taking into account the average spacing of 150 to 200 feet, common in this country.

Outstanding Advantages.

What are the advantages of electricity for street lighting which prompt local authorities to adopt this method?

Briefly they may be summarized as follows:—

(*a*) High efficiency of modern electric lamps, hence low cost for a given lighting result.

(*b*) The complete control of the light by modern refractors and reflectors.

(*c*) Low maintenance cost, since a conversion inevitably lessens the task of the public lighting engineer and effects a considerable reduction in labour.

(*d*) Good visibility from the viewpoints of pedestrian and motorist.

So great are these economies that it is frequently possible to show a sufficient saving on running costs to cancel, in a few years, the capital expenditure on cables and new equipment.

A VIEW OF OUR SHOWROOMS

THE DISTINCTIVE QUALITIES OF EFESCA ELECTRIC LIGHT FITTINGS ARE APPARENT FROM ANY ANGLE

WE EXTEND A CORDIAL INVITATION TO ALL INTERESTED TO PAY A VISIT TO OUR MODERNISED SHOWROOMS WITHOUT INCURRING ANY OBLIGATION.

PLEASE APPLY FOR SHOWROOM INTRODUCTION BOOK FROM:—

FALK, STADELMANN & CO., LTD.

83-93, FARRINGDON ROAD

LONDON, E.C.1

GLASGOW
NEWCASTLE-ON-TYNE
AND AT
MANCHESTER
CARDIFF
BIRMINGHAM
LEEDS
DUBLIN
LIVERPOOL

One London Borough which has provided its streets with modern electric lighting has found that the amount of light available has been doubled whilst the cost remains approximately the same as before.

163% Increase in Eight Years.

The rapidity with which local authorities are adopting electricity for public lighting in Great Britain is shown by reference to the statistical reports of the Electricity Commissioners. In 1920-21 the number of units sold for public lighting was 48,586,523; by 1928-29 this had increased to 127,837,758, a growth in eight years of 163 per cent.

Novel Decorative Lighting

A booklet entitled "Scientific Decorative Illumination," recently issued by Benjamin Electric Ltd., illustrates the modern tendency towards soft effects combined with pleasing appearance. "Scientific Decorative Lighting" is, in fact, by no means easy to achieve, as effects that are pleasing to the eye are often difficult to estimate and plan with precision. The book contains many pleasing illustrations showing the use of units of the type illustrated above. (These, truly, should yield very soft shadows, but is it possible or even desirable that they should be "shadowless"?) Some striking pictures of interiors equipped with cornice lighting, embodying the special trough reflectors of the type here shown, appear; we have selected the illustration below as a particularly good instance of overhead "artificial skylight" effects. Another striking instance, evidently, is the installation of laylighting in the new showrooms of Vickers Ltd., in Broadway, Westminster. We believe that this mode of lighting is something of a departure for Benjamin Electric Ltd., who seem to be continually adding to the variety of implements at their disposal for dealing with different types of lighting installations.

FIG. 1.—A Novel "Shadowlite" Fitting giving very soft shadows.

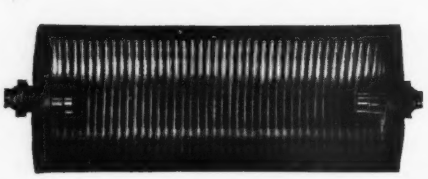


FIG. 2.—A Special Cornice Trough Reflector.

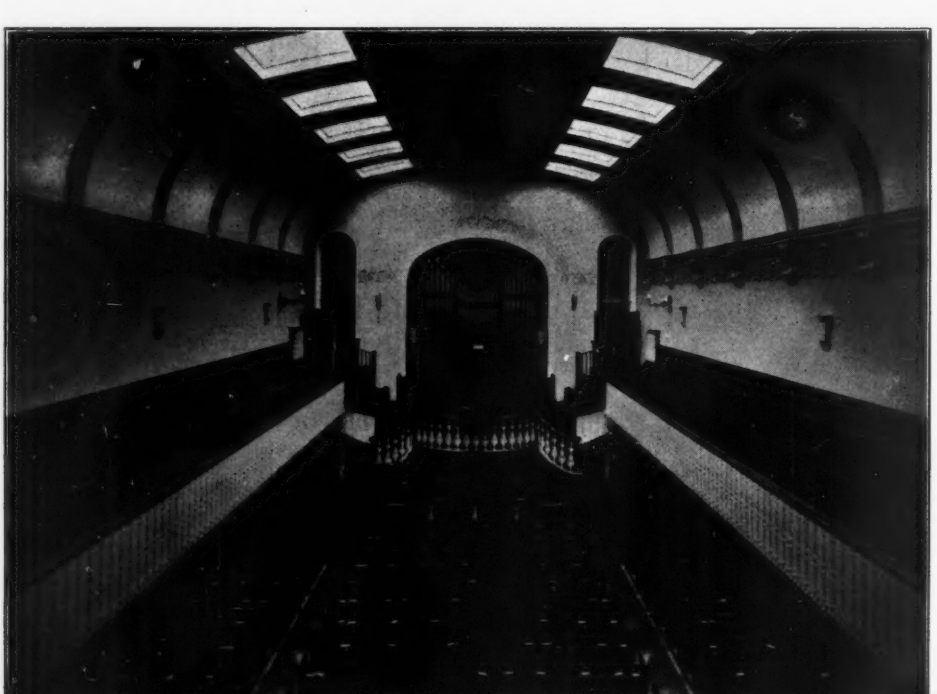


FIG. 3.—A Pleasing Overhead Laylighting Effect.

"LUXOMETER"
PORTABLE PHOTOMETER

for measuring
CANDLE-POWER
ILLUMINATION
SURFACE-BRIGHTNESS
DAYLIGHT FACTOR

THE "Luxometer" is a light, compact instrument complete with self-contained battery, regulating resistance, and all accessories. It weighs only six pounds and has been specially designed to facilitate every form of test, both indoors and outdoors.

The "Luxometer" complies fully with British standard specification No. 230.

EVERETT EDGCUMBE

117, Victoria Street, S.W.1; COLINDALE WORKS, HENDON, N.W.9

A Floodlight in itself!

The International Illumination Congress is being held in London this month, when floodlighting of prominent public buildings will take place.

WELSBACH
BRITISH MADE
GAS MANTLES
ARE
BRILLIANT—DURABLE—BRITISH

Advt. of Lighting Trades Ltd. and The Welsbach Light Co. Ltd., 30/31, Farringdon Street, E.C.4.

TRADE NOTES & ANNOUNCEMENTS

Mazda Publicity

We are informed that in spite of the prevailing depression the sales of Mazda lamps are still increasing, thus maintaining the progressive advance that has taken place during the past three years. This is something of an achievement in such bad times, and is no doubt largely the result of persistent and courageous publicity. In the campaign for the coming season the "dancing girl," illustrated in the accompanying showcards, once more appears, and there are other pleasing novelties which should prove useful to the trade. The new Mazda catalogue contains 48 pages, and is of octavo size; this is supplemented by numerous leaflets illustrating lamps used for domestic lighting, motor-car bulbs etc.

An important feature of the Mazda Press Advertising Scheme will be the series of spaces taken in the *Radio Times* during September, October, November and December—the advertisement taking a prominent place under the Monday's National Programme.

The "Wigan Review"

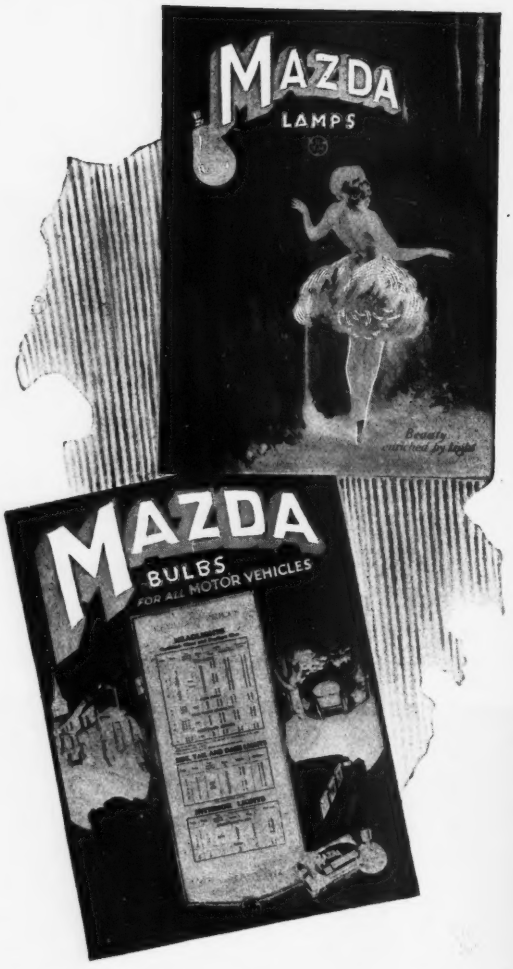
In the *Wigan Review* for August the Editor makes a courageous plea for spending holidays in Wigan, which is, in fact, convenient as a centre from which Southport, Blackpool, Wales and the Lake District can be readily reached. The "Interesting Installation" this time is the Blackpool Winter Gardens, equipped with Lacent fittings. The holiday atmosphere is preserved in the data on the last page, featuring the familiar prismatic fitting as installed in the swimming bath on Viscount Ednam's estate at Himley Hall, and a new and original "chimney" device suitable for lighting the interior of swimming baths and designed for 300—500-watt lamps.

Siemens Advertising Campaign

As we go to press we receive from Messrs. Siemens Electric Lamps and Supplies Ltd. an array of advertising literature, which promises an active autumn campaign. The campaign includes regular advertising in the press from September onwards (we note with pleasure that more than 40 trade journals will receive display advertisements.) New designs of showcards, window displays and price lists suitable for overprinting with names and addresses are available. A feature of the literature generally is the design showing two attractive children, "Still the Popular Pair," bearing the Silvalux (opal) and the Pearl lamp.

"Hailware" Novelties

From Messrs. Hailwood & Ackroyd Ltd. we receive again several illustrations of original lighting fittings, all, needless to say, of entirely British manufacture. The variety of fittings that this firm is producing is something out of the common, and we note with satisfaction that in the designs brought to our notice an effort is invariably made to shield the filament and produce a soft effect, with glare reduced to a minimum. We hope to illustrate some of these fittings in our next issue.



The famous "Dancing Girl" Showcard and the new Mazda Auto Showcard.

BRITISH PATENT.

The proprietor of British Patent No. 293,952, dated June 7th, 1927, relating to "SWIVEL JOINT FOR LIGHTING SYSTEM," is desirous of entering into arrangements by way of a licence or otherwise on reasonable terms for the purpose of exploiting the above patent and ensuring its practical working in Great Britain.—All inquiries to be addressed to B. Singer, Steger Buildings, Chicago, Illinois.

Modern Lamps for Modern Fittings

An original coloured leaflet issued by Messrs. Siemens Electric Lamps and Supplies Ltd. under the above title is devoted mainly to lamps of the tubular character, which can now be obtained to harmonize with metal fittings of distinctive colour and design. Of special interest from a decorative standpoint are the sprayed lamps, obtainable in red, blue, green, amber and flame.